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COMMITTEE ON APPROPRIATIONS

Public Works Appropriations

Hearings

1956

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UNIVERSITY
OF MICHIGAN

JUL 19 1956

MAIN
READING ROOM

HEARINGS

BEFORE THE

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

EIGHTY-FOURTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON PUBLIC WORKS APPROPRIATIONS

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MICHAEL J. KIRWAN, Ohio
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JOHN TABER, New York

CARSON CULP, *Executive Secretary to the Subcommittee*

[1] Temporarily assigned.

CENTRAL SECTION

PART 1

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CENTRAL SECTION

PART 1

UNITED STATES
GOVERNMENT PRINTING OFFICE
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PUBLIC WORKS APPROPRIATIONS FOR 1956

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MONDAY, APRIL 25, 1955.

MISSOURI RIVER BASIN

WITNESSES

DEPARTMENT OF THE INTERIOR

FRED G. AANDAHL, ASSISTANT SECRETARY FOR WATER AND POWER DEVELOPMENT
SIDNEY D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE

BUREAU OF RECLAMATION

W. A. DEXHEIMER, COMMISSIONER
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER FOR ADMINISTRATION
FRANK CLINTON, REGIONAL DIRECTOR, BILLINGS, MONT.
R. WALTER, REGIONAL DIRECTOR, DENVER, COLO.

CORPS OF ENGINEERS

BRIG. GEN. W. E. POTTER, DIVISION ENGINEER, MISSOURI RIVER DIVISION
WENDELL JOHNSON, CHIEF ENGINEER, MISSOURI RIVER DIVISION
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL, OFFCE OF THE CHIEF OF ENGINEERS
B. JOSEPH TOFANI, CHIEF PROGRAMS BRANCH, OFFICE OF CHIEF OF ENGINEERS
HARRY COHEN, ASSISTANT CHIEF, PROGRAMS BRANCH, OFFICE OF THE CHIEF OF ENGINEERS
EARLE JONES, PLANNING DIVISION, OFFICE OF THE CHIEF OF ENGINEERS

Mr. RILEY. Gentlemen, the committee will come to order.

This is one of the panels of the Public Works Subcommittee on Appropriations. We are glad to have you before us, Secretary Aandahl. Do you have a written statement, sir?

Mr. AANDAHL. Mr. Chairman, I have a statement that has been prepared jointly by the Corps of Engineers and the Bureau of Reclamation.

Mr. RILEY. We will be glad to have that at this time, and then we will have the interrogation.

We are pleased to have you with us this morning. I remember very pleasantly your service here, and your service to your great State, and it is a privilege to have you before us.

Mr. AANDAHL. I might say, Mr. Chairman, that I appreciate the opportunity of appearing before your committee.

Mr. DAVIS. Governor Aandahl knows how it is to sit on this side of the table too, so we can expect a harmonious approach to all of our problems.

FISCAL SUMMARY

Mr. RILEY. Before you begin your general statement, Mr. Secretary, we will insert into the record the fiscal summary on this basin and the status of funds tabulation.

(The matter referred to follows:)

Missouri Basin

Appropriation	Budget for 1956	
	Corps of Engineers	Interior-Reclamation
General investigations	$71,000	$85,500
Advance engineering and design	525,000	
Construction	80,110,000	60,616,000
Operation and maintenance	7,647,300	5,292,788
Total	88,353,300	65,994,288

CORPS OF ENGINEERS

Missouri River Basin

Project	June 30, 1954		March 31, 1955		June 30, 1955 (estimated)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation:						
Missouri River:						
Kansas City to Omaha	$46,303	$55,976	$175,115	$689,253	0	0
Omaha to Sioux City	13,505	13,505	502,830	2,567,397	0	$217,500
Kansas City to mouth	3,149	3,149	258,837	575,495	0	0
Flood control:						
Missouri River agricultural levees	1,210,594	1,296,437	[1] 341,945	[1] 844,848	[1]$132,800	[1] 211,500
Missouri River, Kenslers Bend	7,622	36,863	49,430	446,237	0	0
Havre, Mont	31,839	371,622	231,881	417,793	0	159,000
Greybull, Wyo	0	0	0	0	0	0
Multiple purpose:						
Gavins Point Reservoir	300,392	6,054,548	969,825	5,023,148	0	0
Garrison Reservoir	1,734,006	3,753,172	[2] 394,732	[2] 4,211,858	(2)	(2)
Fort Randall Reservoir	−1,493,062	544,737	803,360	3,365,847	0	103,500
Oahe Reservoir	1,702,045	4,263,468	3,312,448	7,282,122	0	2,599,000

[1] Excludes $130,000 loaned to other projects.
[2] Includes $2 million loaned to project.

BUREAU OF RECLAMATION

Construction and rehabilitation—Actual unobligated balances June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955—Missouri and Souris Red Basins

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955, field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Colorado-Big Thompson, Colorado	$102,289	$228,356		$10,000	$10,000
Fort Peck, Montana-North Dakota	80,875	146,956		10,000	10,000
Kendrick, Wyoming	77,375	612,982	$81,000	269,000	350,000
Riverton, Wyoming	184,512	279,836	120,000	30,000	150,000
Shoshone, Wyoming	23,024	264,207		165,000	165,000
Drainage and minor construction	32,133	210,482	118,000	43,000	161,000
Rehabilitation and betterment	57,316	189,894	25,000		25,000
Missouri River Basin:					
Bostwick division, Nebraska-Kansas	225,000	502,055			
Buford-Trenton, North Dakota	229,128	222,959	203,700		203,700
Frenchman-Cambridge division, Nebraska		408,007		170,000	170,000
Glendo unit, Wyoming		245,077			
Hanover-Bluff unit, Wyoming		111,002			
Heart Butte unit, North Dakota	160,185	151,390		5,000	5,000
Helena Valley unit, Montana		61,587	15,000		15,000
Kirwin unit, Kansas		460,676		[2] 150,000	[2] 150,000
Lower Marias unit, Montana	278,682	456,381			
Missouri River diversion unit, Montana	[1] 1,718,301				
Rapid Valley unit, South Dakota	248,233	255,042	90,000		90,000
Sargent unit, Nebraska		223,649			
Transmission division, various	155,897	1,580,315			
Webster unit, Kansas		1,496,522	50,000	[2] 21,000	[2] [3] 71,000
Drainage and minor construction	689,176	309,948	57,000	30,000	87,000
Investigations	226,544	896,639	55,000		55,000
Other Interior agencies	144,697	613,979	87,800	2,500	90,300
Total, Missouri and Souris Red Basins	4,633,367	9,927,941	902,500	905,500	1,808,000

[1] $1,700,000 rescinded by Public Law 465, July 1, 1954.
[2] Pending approval of transfer of $800,000 to Glendo unit.
[3] Reflects $129,000 transfer to Middle Rio Grande.

GENERAL STATEMENT

Mr. AANDAHL. The big Missouri, over 2,400 miles long, drains one-sixth of the entire United States. From the eastern slopes of the Continental Divide in Montana, Wyoming, and Colorado, the basin spreads eastward over the great plains—North Dakota, South Dakota, Nebraska, and northern Kansas. It includes small western portions of Minnesota and Iowa, and much of Missouri. Weather conditions tend to the extreme; severe winters and hot summers, with insufficient rain often during the summer months for agriculture and domestic use. Irrigation is essential to agriculture in the western areas, becoming less critical in the eastern section of the basin.

The basin has always been plagued with extreme droughts in one portion and disastrous floods in another, sometimes within a few weeks of each other. The great Dust Bowl period of the thirties caused mass migrations from which parts of the region have never fully recovered. The basin is rich in minerals, and high in the production of cattle and wheat. Its great needs are a stabilizing influence on its agriculture, a balancing industrial expansion, adequate municipal and industrial water, and freedom from floods.

In the northern and western portions irrigation predominates, while in the southeastern quarter, flood control and navigation assume greater importance. Incidental hydroelectric power is a helpful contribution to the power requirements of the area.

The phenomena of drought and flood, land erosion, and untimely weather, have created major problems relating to water supply, floods and land utilization, and emphasize the need for a comprehensive development of the basin's water resources, for stabilizing agriculture, for balancing the economy by increased industrialization, and for stimulating commerce.

To that end, a comprehensive program for water resource development was formulated by the Corps of Engineers and the Department of the Interior in 1943 and 1944 based on extensive field surveys and investigations. This program included a broad selection of projects designed to secure a maximum of effective control and utilization of the basin's water resources at a minimum of cost. It includes the construction of over 100 reservoirs in the basin, with 6 major multiple-purpose units on the main stem. In order to effectively control and use the available flows, these main-stem reservoirs will have an aggregate capacity of about three times the average annual flow.

The main-stem multiple-purpose reservoirs will provide the water needed for major irrigation diversions, for sustaining adequate flows for water supply and stream sanitation along the Missouri, for navigation in the improved channel below Sioux City, and generation of very large blocks of hydroelectric power; and will reduce flood flows from the basin above Sioux City, Iowa. Multiple use is also made of the reservoirs on the tributaries to supply water for irrigation in the tributary basins, to generate power where justifiable, to provide flood reduction on the tributaries, and to assist in reducing flood flows on the main stem of the Missouri.

Prior to the authorization of the Missouri River comprehensive plan, Federal development was limited to about a dozen scattered reclamation projects, the large Fort Peck Reservoir in Montana built by the Corps of Engineers for navigation, power, and flood control, and improvement of the lower Missouri River in aid of navigation. Reclamation's Colorado-Big Thompson transmountain diversion project was underway in Colorado and a number of other scattered flood-control and conservation dams were completed or underway. The plan was developed as a comprehensive arrangement for the wisest use and control of the entire water resources of the basin.

Maximum advantage was taken of the opportunity to obtain important corollary benefits as regards recreation, fish and wildlife conservation, stream pollution abatement, the welfare of Indians, mineral development, erosion control, siltation control in streams and reservoirs, and improvements in general commerce.

Of immediate concern is the need to continue investigations and planning work at a high rate. Much basic data on topography, hydrology, land classification, and reservoir sites are lacking. Much detail planning is necessary to achieve the most economical results in the selection of proper units and structures, to assure development of the most productive lands, the proper balance between surface and underground supplies, and the drainability of proposed irrigated lands. This work requires the use of experienced and highly trained engineers and technical employees under a sustained work program that is reasonably free from disruption over a long period of time. It is a long-range program with the ultimate full development many years ahead.

NAVIGATION

The present project for navigation of the Missouri River from Sioux City, Iowa, to the mouth was authorized by the 1945 River and Harbor Act. The project provides for a navigable channel of 9-foot depth and 300-foot width for the movement of commercial freight, and will permanently stabilize the banks of the river so as to confine the flows into one continuous channel. The project provides protection against erosion to agricultural and urban areas totaling over 1,800,000 acres and involving installations valued at about $2 billion. The bank stabilization works also protect the agricultural and urban levees along the river from erosion.

From Omaha to the mouth the project is nearly 80 percent complete with the remaining work consisting largely of refinements and rock revetments. A navigation channel of 6½ to 7 feet is currently being maintained. The river above Omaha is essentially uncontrolled and until this year no work had been done on this reach since the war. Maintenance of a 9-foot channel is dependent upon completion of the stabilization works and releases of water from upstream storage reservoirs which include navigation as one of their authorized functions.

Commercial traffic on the river downstream from Omaha is increasing rapidly as stabilization works and augments flows produce better channel depths. In 1954 there were 287,400 tons of commercial traffic on the river as compared to 152,000 tons in 1953 and 50,000 in 1952. Barge-line operators are predicting at least 500,000 tons for 1955, which is 10 percent of the forecasted ultimate commercial traffic of 5 million tons annually on the lower Missouri.

FLOOD CONTROL

The authorized multiple-purpose reservoirs for the Corps of Engineers on the main stem of the Missouri include Fort Peck, Garrison, Oahe, Big Bend, Fort Randall, and Gavins Point. Together with the authorized reservoirs in the lower tributary basins, and a system of levees from Sioux City, Iowa, to the mouth, they constitute the basic flood-control plan for the Missouri River Valley below Sioux City. This combination of control works will provide protection against floods for 1,700,000 acres of land and many small communities along the main stem from Sioux City to the mouth and large urban centers such as the Kansas City, Omaha, Council Bluffs, and Sioux City.

In addition to this major flood protection plan, 26 tributary reservoirs in the authorized program of the Corps of Engineers and numerous local protection projects will provide essential flood protection in other parts of the basin. In addition, the program of the Bureau of Reclamation includes the construction of 80 reservoirs primarily for irrigation in the tributary basins, and most of these will provide substantial contributions toward controlling floods on the tributary streams.

To date, 29 reservoirs of the combined authorized program of the Corps of Engineers and the Bureau of Reclamation have been completed or are under construction, and 23 local protection projects

have been completed or are underway. Although only a part of the ultimate plan for flood control is in an operational status, substantial flood-control benefits are being realized already. The main-stem reservoirs at Garrison and Fort Randall, although not complete, are sufficiently advanced to do a substantial job of flood control at present. Togther with Fort Peck, these projects are capable of reducing a flood similar to the disastrous 1952 flood to well below flood stage at Omaha and Council Bluffs.

Major local flood-protection works have been constructed by the corps at Omaha and Council Bluffs, which, together with the upstream control on the main stem, already provide a very high degree of protection against flooding at those localities. Effective flood protection has been provided by means of local protection works and reservoirs at Mandan, N. Dak. The damage prevented by these structures since their construction already exceeds their cost.

Major local protection works are substantially completed at the Kansas Citys, and provide a moderate degree of flood protection to this major urban area. However, full protection cannot be realized at the Kansas Citys until additional flood-control storage capacity is constructed in the Kansas River Basin.

IRRIGATION

Irrigation over most of the Missouri Basin is essential to the agricultural economy and has been underway by the Bureau of Reclamation since 1903. In addition, many small areas have been developed by State and private agencies. Present authorizations will provide an irrigation supply to over 5 million acres of productive land. Sixteen Bureau projects are in operation including the major Colorado-Big Thompson project, and sizable developments on the Sun, the Milk, the Shoshone, the North Platte, and at Riverton and Kendrick. Several new units of the comprehensive plan are now complete and construction is underway by the Bureau on 10 new irrigation units as well as additional work on several of the older projects. In fiscal year 1956 construction on the Kirwin unit and preconstruction on several other units will be underway on areas proposed for irrigation from dams and reservoirs now being completed.

Further irrigation progress in the basin is heavily dependent on investigation funds for major areas such as the Garrison diversion unit in North Dakota and the Oahe-James River development in South Dakota. Most of the other lands in the basin will be developed by small units on which planning must be completed in order that construction can be started as soon as funds can be made available.

The construction of conservation dams having flood control and power benefits has necessarily preceded the irrigation of lands in connection therewith. In addition, irrigation is dependent on the power produced for low-cost pumping of irrigation water. Major units on which funds for the construction of irrigation facilities are needed for continuation in fiscal year 1956 are the Bostwick unit in Kansas and Nebraska, Frenchman-Cambridge and Sargent in Nebraska, Hanover-Bluff in Wyoming, Heart Butte in North Dakota, and Helena Valley in Montana.

POWER

The power development of the basin provides for hydroplants with a combined capacity of about 2,600,000 kilowatts, and a transmission grid. The largest units are at the main river plants of the corps in North and South Dakota. Federal powerplants have previously been constructed by the corps at Fort Peck in Montana, and by the Bureau at the Colorado-Big Thompson in Colorado, Kendrick, Shoshone, and Riverton in Wyoming, and North Platte in Nebraska projects. The major units are now under construction or completed, with construction currently underway by the corps at Garrison, Oahe, Fort Randall, Gavins Point, and by the Bureau at Glendo. Four plants, Angostura, Boysen, Kortes, and Canyon Ferry, have been completed by the Bureau under the 1944 act. Fort Randall, largest of the main river plants, is in partial operation by the corps. Major sites on which construction has not yet started are Yellowtail in Montana, for which plans by the Bureau are complete, and several in the upper Missouri area.

A high voltage transmission system, interconnecting the main plants with load centers, has been under construction by the Bureau since 1946 at a rate consistent with completion of generating facilities. These lines include all of the basin States and extend beyond the basin into Iowa and Minnesota. Power is marketed to using agencies by the Bureau of Reclamation with preference in sale of power given to public bodies and cooperatives, in accordance with existing Federal law.

At the present time Missouri River main-stem power is being marketed to about 80 rural electric cooperatives, municipalities and other public bodies, 18 irrigation pumping plants, and 3 privately owned utilities over more than 1,800 miles of transmission line and through more than 50 substations having aggregate capacity of more than 500,000 kilovolt-amperes. Other lines and substations yet to be completed will serve additional customers and will provide a basic transmission grid interconnecting the main-stem powerplants. The transmission grid will integrate the several projects for operation as a coordinated power system. Currently main-stem power is being delivered to customers in the States of Montana, North Dakota, South Dakota, Iowa, and Nebraska. Applications have been received for all firm power to be generated at the main-stem plants through 1958.

Three new transmission lines are proposed for 1956, and there is urgent need to complete major lines and substations now underway to insure the marketing of all power coming in over the next 2 years from the mainstream generating plants. The new lines proposed, of 115-kilovolt capacity and totaling 172 miles, are Grand Forks-Fargo, Alcova-Fremont, and Fort Randall-Nelight. Advantage is being taken of existing lines of private and public utilities wherever practical, through wheeling arrangements, and the construction of lines by local entities.

OTHER FUNCTIONS

Other aspects of the water and land use and development program in the Missouri River Basin include: Provisions for water supply for municipal and industrial purposes and pollution abatement; provisions for recreation at and in the vicinity of reservoirs; measures for

conservation of fish and wildlife; and measures for land management and utilization. The Missouri River Basin coordinated plan requires active participation, particularly in the planning stages, of six agencies of the Interior Department in addition to the Bureau of Reclamation, and for which funds are obtained through the project appropriation to Reclamation. These other agencies have the major responsibility for Indian affairs, fish and wildlife, recreation, public-land management, surveys, and mines. It is essential to the successful completion of the basin development that funds be provided for this work. The Geological Survey provides essential basic data; the National Park Service participates in recreation planning at reservoir sites; and the Fish and Wildlife Service provides for the preservation and enhancement of fish and game. These activities are coordinated by the Interior Field Committee and the Federal Interagency Committee, with participation by the States and local units.

CONCLUSION

All of the water resources needs of the Missouri Basin have been fitted together into one plan, by all of the affected agencies; probably to a greater extent than in any other area. The uses of water have been carefully planned as among irrigation, municipal, and industrial needs, power production, and navigation, with full benefit from flood storage, and from multiple-purpose construction. Large economic savings result from concurrent construction and use of data, and the availability of all plans to each agency involved. Hence funds appropriated to Reclamation permit irrigation development and power marketing to coincide with the completion of major storage dams and powerplants on the main river by the Corps of Engineers. Delays or acceleration to one phase of the program must thus be considered in its effect on the related phases of work in the basin.

Considering the magnitude of the comprehensive water-development program, construction has progressed at a good rate. Progress has been well balanced throughout the basin except for the lower basin tributary reservoirs. This delay has also precluded construction of levees along the main stem and as a result water conservation and flood control in the lower-basin program are lagging seriously behind. But, on the whole, the basin program is progressing in an orderly and rapid fashion toward ultimate completion. This remarkable achievement in a single decade of construction has been possible only through the strong and active support of the basin States and local interests together with close Federal interdepartmental coordination.

This progress and the effective integration of the interrelated projects of the two construction and operation agencies have been accomplished under the basic policies established in Senate Document 247, and through the effective guidance of the Missouri Basin Inter-Agency Committee. This coordination has required insuring that all elements of the plan will be properly interrelated when completed, and also that integration is maintained progressively in establishing construction program schedules. As specific examples, construction of the lower river channel works has been scheduled so that the lower part of the channel would be ready by the time better flow regulation could be achieved by initial storage operations at Garrison and Fort Randall

This has been accomplished and there already is a substantial upswing in commercial traffic on the river with 500,000 tons expected for 1955. The most urgent flood-control projects have been scheduled first in the program, with the result that a total of $975 million of flood damages has already been prevented by projects of the comprehensive plan. As another example of coordination, the schedule for the Bostwick irrigation project of the Bureau of Reclamation has made land available for irrigation as rapidly as water is accumulating and becoming available in the Harlan County Reservoir of the Corps of Engineers.

Perhaps the most outstanding example of the effective manner in which interagency coordination is being accomplished has been the operation of the reservoir control center which operates under the general guidance of a Federal Agency-State Engineer Committee and which is successfully integrating water control and service to the various functions and areas during the critical initial filling period of the main-stem reservoirs.

Mr. RILEY. Mr. Secretary, you have given us a very comprehensive statement on the Missouri River and its related projects, and we appreciate your coordinating this so nicely for us.

As I understand it, this is a joint statement from your office and the Office of the Army Engineers?

Mr. AANDAHL. That is correct.

Mr. RILEY. We are very happy to have with us also Gen. Joe Potter, division engineer for this district, and if I ask any questions, or if any members of the committee ask any questions, that you wish to refer to each other or to some of your staff, we wish you would do just that.

Most of these projects, as I understand it, are moving along toward completion with the possible exception of Oahe; is that correct?

OAHE RESERVOIR

Mr. AANDAHL. Well, Oahe is moving along at a good rate at the present time. It was a little later than the other corps projects on the main stem to get started.

Mr. RILEY. Well, it did not start until last year or the year before.

General POTTER. Last year we got our first go-ahead appropriation, Mr. Riley, and since then we have had this project on a going basis rather than going along on the rather small appropriations we have had for the 5 years previous.

STATUS OF MAIN STEM PROJECTS

Mr. RILEY. Can you give me the approximate percentage of completion of each one of these main stem projects?

General POTTER. Fort Peck is completed sir, with the exception of the second powerplant, which has not yet been started.

Garrison Reservoir is about 81 percent complete, the embankment being completed.

The powerhouse is sufficiently along so that the first power will come on this fall.

Oahe is about 10 percent complete, sir, with earthwork on each bank now being underway, and the main outlet tunnels being started.

Big Bend has never had an appropriation.

Fort Randall is essentially complete, and it has 5 of the 8 generators on the line. The embankment is built, and the powerhouse is a completed structure.

Gavins Point is about 45 percent finished, sir. Actually at this time the embankment is almost complete. The closure takes place on July 7. The powerhouse is started and all major contracts have been let.

Mr. RILEY. Going back to Fort Peck, is that simply a question of installing generators, or do you have to build a powerhouse there?

General POTTER. We have to build a new powerhouse, and convert one of the existing flood-control tunnels to a power conduit.

GARRISON DAM

Mr. RILEY. Coming down to Garrison, as I recall there was some question about the height of the dam and the water levels. What is the status of that?

General POTTER. That will take a fairly comprehensive statement, sir. I could give that now, or when we reach the project.

Mr. RILEY. If you could, give us a short statement as to whether or not you are going to use the high-water levels.

Mr. PHILLIPS. Could somebody read the legends on the map to me? I have difficulty reading them. What does the red mean, and what does the green mean?

General POTTER. The red is under construction, and the green is authorized.

And the blue is the proposed, I believe.

Mr. PHILLIPS. Where is the blue on the map?

General POTTER. There are several small reservoirs there.

Mr. RILEY. They are not on the main stem, however.

General POTTER. No, sir.

Mr. RILEY. Can you point out whether or not it is proposed to use the high-water level, and then go into detail later?

General POTTER. We propose to operate this reservoir at 1,850 feet. That position is strongly supported by the entire State, except for a few individuals at Williston.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. AANDAHL. Mr. Chairman, I would like to make a statement in that connection.

Mr. RILEY. Yes.

Mr. AANDAHL. I was Governor of North Dakota at the time this construction work got underway on Garrison, and I, with the 4 other members of the North Dakota Water Commission, appeared at the Missouri Basin Interagency Committee in Omaha in August 1945, and we recommended a 1,850-foot level. The State water commission and the Governor's office has supported that position continuously since that time.

BIG BEND

Mr. RILEY. Big Bend is the only one of the main-stem projects that has not been started, or for which no appropriation has been made?

General POTTER. That is right, Mr. Chairman.
Mr. RILEY. Do you have your planning money for that?
General POTTER. We have not started construction planning.
Mr. RILEY. No planning or construction?
General POTTER. That is right, sir.

COST ALLOCATIONS

Mr. RILEY. Mr. Secretary, can you give me the most recent cost allocations on the Missouri Basin project and the amount to be repaid by power and by the irrigation districts?

Mr. AANDAHL. It is my understanding, Mr. Chairman, that you have the statement of cost allocations that appeared in the 1953 report of the Missouri Basin.

You know we have been making a review study of the Missouri Basin. That review study was put under way at the suggestion of the Federal Interagency Committee here in Washington, and has been conducted in the field, and I believe General Potter heads up the Committee that is making that survey study. A preliminary draft of that review was printed under date of April 15.

Mr. RILEY. This year?

Mr. AANDAHL. Yes, this year, and the final draft is expected this fall, and I know that this preliminary draft is going to have some revision before it is approved by the Department of the Interior and by the Department of the Army, and I think it would be well if we did not attempt to give you exact figures at this preliminary stage.

I will say that the allocation to commercial power will be, I think, a little larger than it is in the 1953 study, and the allocation to irrigation will be a little bit less.

The lesser amount to irrigation is because in the revised report it will not be expected that as many acres will be placed under irrigation as was expected at the time that the earlier report was made.

The total cost will be substantially the same as was shown in the 1953 report, probably tending to be just a few percent lower than that in the 1953 report.

That is the general trend that I see as we go into this review study, but as you notice I have not attempted to give you any specific figures.

General POTTER. Could I just add, Mr. Secretary, that this year for the first time the systems used in allocating costs are exactly the same in the Bureau and the Corps of Engineers, and we jointly worked up the allocations for all structures.

Mr. RILEY. This committee has for some time been interested in having an agreement between the Bureau and the Engineers and others interested in working out a formula.

Mr. AANDAHL. I think it was in March, a year ago, Mr. Chairman, that the Department of the Army, the Department of the Interior, and the Federal Power Commission fixed secretarial signatures to a cost allocation formula that is approved and is being used by those three departments of the Federal Government. I think we have made real progress in getting our cost allocations in satisfactory form since we have been working with the new cost allocation formula.

Mr. RILEY. What will be the effect of the decreased number of acres to be irrigated?

Mr. AANDAHL. The result will be somewhat changed by the reduced number of acres.

RATES PAID FOR IRRIGATION WATER

Mr. RILEY. In these irrigation projects, Mr. Secretary, do all of the people who obtain irrigation pay approximately the same rate for water per acre, or does that also vary up and down the valley?

Mr. AANDAHL. It varies with projects, and it varies with the benefit that the water gives to specific tracts and areas of land.

The repayment is based upon a calculated measure of the water users' ability to repay, and on many of the projects, particularly the newer irrigation projects that are being developed, what we call the more difficult projects to develop, the water users' ability to repay is quite a little short of the cost of the project. The additional cost of the project in many of our basins, and that is true of the Missouri Basin, is being picked up by power revenues.

The people of the area are expected to make full repayment for the irrigation investment; as much as can be paid is paid by the water users, and the balance is picked up by power revenues.

INDUSTRIAL USERS OF WATER

Mr. RILEY. Do you obtain any revenues from industrial users of water?

Mr. AANDAHL. How is that?

Mr. RILEY. Do you obtain any revenues from industries using water? Do you have any manufacturing plants that obtain water from your reservoirs, and pay you for it?

Mr. AANDAHL. There are some instances where both municipal and industrial water is sold.

USE OF POWER REVENUES TO MEET COST OF IRRIGATION

Mr. RILEY. I note that you said that more of the cost of these projects is being picked up by power. How is that affecting the power rate that you have to charge?

Mr. AANDAHL. Well, it is my understanding that over a period of quite a number of years the Bureau of Reclamation has been establishing power rates that have a sufficient cushion in them, or that are intended to have sufficient cushion in them, to pick up the costs of irrigation that cannot be paid by the water users, and we are continuing that policy at the present time in reviewing projects and reviewing rates.

Mr. RILEY. Could you give me some idea, either you or General Potter, as to what the rate would be for electricity without absorbing part of the cost of irrigation?

Mr. AANDAHL. I do not have a percentage figure in mind as to what that amounts to.

I do know that power revenues in support of irrigation are a substantial figure.

You might look at the cost allocation and repayment probability in the 1953 Economic Report.

You will notice there that the cost allocation to irrigation is $2.7 billion plus, and the repayment of the water users is $661 million, which is one-quarter of the investment in irrigation, and the allocation to power is $874 million, and that power is to repay $2.9 billion plus. That indicates the measure and the degree to which power revenues are picking up the cost of irrigation, and the new allocation and payout tables that will be ready to submit in the fall sometime, after we have completed the review study, will bear relation to that, corresponding to what these are, although the figures will be somewhat different.

Mr. RILEY. I note that these projects are justified on the multiple-purpose use basis, but I was interested in getting what we could sell electricity for if it did not have to absorb these other costs.

Now, I am in sympathy with joining them together, but I was interested in knowing the cost of the electricity without it picking up the tab for these other usages, and I wondered whether or not you could give me some idea on that. If you cannot do so at this time I would like to have it furnished for the record.

Mr. AANDAHL. The conclusive information that I could give you now is the relationship shown here in these two sets of figures which I just called to your attention.

Mr. RILEY. Off the record.

(Discussion off the record.)

(The following information was supplied for the record:)

The preliminary 1954 data for the Missouri River Basin analysis indicates accomplishment of repayment of the power investment in the 43d year following the time the last power unit goes in operation in order to repay the portion of the irrigation cost over and beyond the ability of the water users to repay. If the repayment of the power investment were extended to the full allowance of 50 years for repayment of power costs the net annual revenue to accomplish payment would be reduced with the result that the rate for firm energy could be reduced from 5.5 mills per kilowatt-hour to 5.0 mills per kilowatt-hour.

The comparable figures based upon data in the 1953 study are: Repayment of power investment accomplished in the 23d year following last power investment. If full 50-year repayment period were used the rate for firm energy could be reduced from 5.5 mills per kilowatt-hour to 3.7 mills per kilowatt-hour.

Mr. RILEY. On the record.

NEW COST ALLOCATIONS

Now, Mr. Secretary, as I understand, this preliminary study which has just been released will be analyzed still further to decide whether or not there will be an adjustment of the costs in the future; is that correct?

Mr. AANDAHL. Well, the April 15 print is just a preliminary draft for review purposes. After we have had an opportunity to review it in the Department, and to do the same thing over in the Department of the Army, and complete our field studies and do some additional work which still needs to be done, we will have a final draft of this study sometime this fall, and then that will be printed and released and will be public information.

Mr. RILEY. When that is done, then you will determine whether or not a readjustment is in order; is that right?

Mr. AANDAHL. No; the new study embodies revised cost allocations. When it comes out it will have readjusted cost allocations.

Mr. RILEY. All right; thank you, sir.

POWER RATES

Mr. MAGNUSON. Mr. Secretary, what will be the effect on power rates of this readjustment of cost allocations?

Mr. AANDAHL. I would not want to venture a statement on it at this time. We have been making a review of the adequacy of the rate under the previous cost allocations and, of course, we have not had any opportunity to look at it in connection with the new allocation study. It would be very hazardous to venture an opinion on it at this time. I just could not do it.

Mr. MAGNUSON. Do you presently have a uniform rate throughout the basin?

Mr. AANDAHL. In the Missouri Basin we have a rate of 5½ mills in the eastern division. That is along the main stem where these projects are that we have just been talking about.

In the western division we have a rate of 7.1 mills.

Mr. MAGNUSON. Is this rate of 7.1 mills competitive?

Mr. AANDAHL. What do you mean by competitive? I can answer it this way: There is a ready market for the power at that price.

Mr. MAGNUSON. It apparently is if there is a ready market for it.

Now, you have had these figures on the 1953 study of cost allocations for a year or two, but you say you still have not reviewed the adequacy of the present rates based upon those figures?

Mr. AANDAHL. Only to be repeatedly informed by staff people that they thought the rate was adequate on the basis of the previous studies.

Mr. MAGNUSON. You now know that the allocation to power will go up, is that right?

Mr. AANDAHL. That is correct.

Mr. MAGNUSON. You do not feel that it follows that the price of the power will go up?

Mr. AANDAHL. Not necessarily. There may have been some cushion there. There often is when rates are set up, and the allocation to irrigation is going to be generally some part of the power revenue so as to make up the irrigation investment that cannot be repaid by the water users themselves. So, there are a number of balancing factors, and I would not know at the moment what the end result will be.

Mr. MAGNUSON. What accounts for the disparity between the eastern and western section rates? I presume a difference in the cost of those phases of the project.

Mr. AANDAHL. Well, they are different types of projects. I do not know if I could give you any information on that, but Mr. Clinton, our regional director, probably could.

Mr. CLINTON. Generally, Mr. Magnuson, in the western division the costs for power are higher and, secondly, the rate was set in earlier years. It was set, as I recall, generally by the requirements for the Colorado-Big Thompson project under an earlier authorization, and that rate has been retained through the years.

IRRIGATION REPAYMENT PERIODS

Mr. MAGNUSON. Mr. Secretary, I was running through these justifications over the weekend. I noticed that the irrigation costs on one of these projects will not be paid out by the water users until the year 2020; is that correct? It seems to me it was either the Kendrick or the Riverton project.

Mr. AANDAHL. I do not have the years for that particular project in mind, but I presume you have the figure as it is in the justifications. I know that some of the irrigation projects have a very large period of repayment.

Mr. MAGNUSON. Do we have many reclamation projects that will take that long to repay their Government investment?

Mr. AANDAHL. Are you talking about the irrigation investment?

Mr. MAGNUSON. Yes.

Mr. AANDAHL. There are quite a number of those projects on which the repayment date has been set, and a new contract has been worked out, and the new contract has been approved by congressional action which runs beyond the normal 40- or 50-year repayment period. Quite a number of those run up to 60, 65, or 70 years for repayment.

Mr. MAGNUSON. In reappraisals and readjustments such as that, what has the history been? Have you generally found that you have to extend the payout period?

Mr. AANDAHL. There was a group of the older projects that were in difficulty on repayment. There was a restudy, and contract renegotiation for the purpose of remedying those difficulties. That was authorized by action of Congress and each contract had to be approved by Congress.

Off the record.

(Discussion off the record.)

Mr. AANDAHL. I do not have information on that, but it is quite a sizable number.

(The following information was supplied later.)

Since 1948 when the amendatory repayment contract program got fully underway, pursuant to the requirement and authority of section 7 of the Reclamation Project Act of 1939, for the purpose of resolving urgent repayment problems and placing repayment arrangements on a sound and equitable basis, the Department has submitted to, and the Congress has approved, amendatory contracts with 37 water users' organizations involving 20 reclamation projects.

M'NARY DAM

Mr. MAGNUSON. There is a general tendency now, it appears to me, to allocate a greater part of the cost to power, is not that true? I am thinking of McNary Dam, for instance in my State. I am not sure that I can quote the figures except that I recall a year or two ago the Federal Power Commission assigned 97½ percent of the joint costs to power, which, I believe, obligated power for 92½ percent of the entire project. Perhaps we should talk to General Potter about this.

General POTTER. McNary is out of my bailiwick, Mr. Magnuson.

Mr. MAGNUSON. Yes, I know it is.

I suppose we can expect that, with the allocation of greater proportions of the cost to the power phase, that power rates almost inevitably will have to go up?

Mr. AANDAHL. I am not sure that there has been a change in allocation in the type of project that you are referring to. The McNary project is a project which has no conservation or irrigation storage. It has power and to a very limited degree flood control and navigation. I am not sure just what those amount to in that project. I do not know as the allocation is materially different there than it was, or the procedure for determining allocations is materially different between those particular benefits of the project than it was 10 years ago.

Mr. MAGNUSON. I think it was substantially increased, at least the allocation of the cost of the joint facilities. As you say, this has no irrigation feature, which is usually the principal one in addition to power.

YELLOWTAIL PROJECT, MONTANA

In your statement, Mr. Secretary, you mentioned the Yellowtail project in Montana.

Mr. AANDAHL. Yes, sir.

Mr. MAGNUSON. And you said that the Bureau's plans for it are complete. Can you just briefly tell me what those plans are?

Mr. AANDAHL. I wonder if I might ask Mr. Clinton, our regional director, to give the detail on that.

Mr. MAGNUSON. I notice that the Secretary said that plans for the Yellowtail project are complete, but that construction has not started.

Mr. CLINTON. That is correct.

Mr. MAGNUSON. I am interested in the thinking of the Bureau with respect to getting this project started, and under what arrangement.

Mr. CLINTON. The Bureau has been ready for some 3 or 4 years to start construction on it. There have been various reasons why the Congress has not appropriated money so far.

One of them has been our difficulty in acquiring right-of-way from the Crow Indian Tribe. A portion of the reservoir is located inside the reservation. The other factor is the magnitude of the project. It approaches a $100 million project. With limitations on budget ceilings it is more difficult to get that size project started.

I think those are about the two main ones I can cite right now which have held it back.

Mr. MAGNUSON. Does the Bureau contemplate the possibility of its being built by some agency other than the Federal Government?

Mr. CLINTON. We are exploring the possibility of a partnership plan with the private utilities in that area whereby they would build some of the power facilities. The Government would build the dam and the power companies would build some of the power facilities. We don't know how far that will go yet. It has not been fully explored.

Mr. MAGNUSON. What utilities are potentially in the picture?

Mr. CLINTON. The Montana Power Co. and the Pacific Power & Light Co. are. They both have service areas adjoining the project.

Mr. MAGNUSON. Just as a rule of thumb, what might a private utility in that arrangement construct? The powerhouses?

Mr. CLINTON. It could go all the way to their constructing the powerhouse, substations, and the lines.

Mr. MAGNUSON. What control, if any, would the Federal Government exercise over power rates in that event?

Mr. CLINTON. I think in that event the power rate would be set by the Federal Power Commission. Correct me if I am wrong, Mr. Secretary.

Mr. AANDAHL. The power rates of the private utility would be governed either by the Federal Power Commission or the ratemaking body in the State in which the utility operates, depending on the nature of the arrangement.

Mr. RILEY. Where such an arrangement as that is made do private power companies pay rent for the water?

Mr. CLINTON. They would lease falling water, and pay the Government an annual payment for falling water that would be sufficient to amortize the Government's investment in the joint facilities and also cover their share of the operation and maintenance costs.

Mr. AANDAHL. And that item could also include a factor which could be used in aid of irrigation.

Mr. MAGNUSON. There is an irrigation factor at Yellowtail?

Mr. CLINTON. Yes, there is irrigation directly associated with Yellowtail Dam. If the irrigation unit is built it will depend on Yellowtail Dam for both a diversion facility and also for storage water.

Mr. MAGNUSON. I think that is all, Mr. Chairman.

NEW STARTS

Mr. DAVIS. Mr. Secretary, what in the way of new starts, if any, are contemplated in this basin in the 1956 fiscal year?

Mr. AANDAHL. We don't have any new starts in the Missouri Basin for this year.

DETERMINATION OF FIRM POWER

Mr. DAVIS. When you refer to firm power, that is the letting of contracts for firm power, what are the things which you would take into consideration for Fort Peck, for example?

Mr. AANDAHL. Are you asking about the rate or amount of firm power?

Mr. DAVIS. The amount of firm power that would be anticipated.

Mr. AANDAHL. The amount of firm power that is determined to be available from a project is the result of a study made by the constructing agency and the way which they expect to operate that project, and the amount of water that will be there as shown by hydrologic studies. The firm power is the amount of power that can be depended on around the clock day after day, month after month, and year after year.

I might say that in the amount of firm power which has been determined as available for sale in the eastern division of the Missouri Basin, where we are currently in the process of completing contracts, is the amount of firm power which would be available in the 1933 water year; 1933 is a year below the average but is not the lowest year of record in the water history of the Missouri River.

In years where there would be water less than what there was in 1933 it would be necessary for the Bureau of Reclamation to buy some

offpeak steam power to go with the hydrocapacity in order to supply the amount of energy that is sold under the contracts that we are negotiating at the present time.

Mr. DAVIS. Is there a general authority in the law which permits you to contract to sell or contract to purchase power which you might not be able to deliver on the basis of hydroelectric sources?

Mr. AANDAHL. There has been a great deal of discussion on that particular question. I do not have a firm opinion. I know that Interior's power-marketing agencies, that is the Bureau of Reclamation, the Southwestern Power Administration, the Southeastern Power Administration, have been purchasing steam power to firm up the hydro.

In the Bonneville Power Administration area we do not purchase steam to firm up the hydro.

Whether there is specific legal authority to do so or not I am just not certain.

It has been argued both ways. Such purchases have been made for quite a period of years, and I am not too sure about the law.

Mr. DAVIS. What do the people who are doing it rely on for their authority—some sort of doctrine of inherent power?

Mr. AANDAHL. It is something which has grown for a long period of time and Congress has allowed appropriations with items in the appropriation bill for the purchase of steam power. It is just something which has grown.

Mr. DAVIS. You have talked of using firm power, picking out the year of 1933. To a certain extent, then, there is an arbitrary determination as to what firm power would be.

I would think if the term "firm" is to mean firm that you would have to pick out the lowest water year, either of record or which could be anticipated taking certain changes which might have occurred since the lowest year of record into account, rather than to take some arbitrary year which you might just decide upon and say well, this is less than average, not the worst, and we think that will be "firm."

To a certain extent it is an arbitrary finding. Is that correct?

Mr. AANDAHL. That is correct. If we are to use anything other than the lowest water year in determining the amount of firm power, that determination must be associated with an understanding that offpeak steam energy will be bought in low-water years to firm up to the amount which has been sold.

In the Southwestern Power Administration area the firm power which we sell there is based upon the low-water year.

However, in the Southwestern Power marketing area we have hydroelectric power which has a different characteristic than what we have in the Missouri Basin and in the Bonneville area. In the Southwestern Power Administration area the firm power that we have is really peaking capacity, and doesn't have enough energy with it to run around the clock and to give the customer the power that he needs at the load factor at which he uses it.

So most of the firm power which we sell in the Southwestern Power Administration area has a certain amount of purchased steam power with it to firm it up, even though the amount is based upon the low-water year.

It is power with a different characteristic from what we have in the Missouri Basin and in the Columbia Basin.

General POTTER. Our Federal Interagency Committee on Power, which in its studies included private power companies, is a joint study of the Federal agencies and the private power companies, and came up with a definition for "firm power" as the fourth year of a consecutive series of drought years.

We also must remember in the Missouri Basin that the lowest water year might not happen but once every 250 to 400 years. The drought of the thirties had about that frequency.

The further fact, sir, is that irrigation will not develop rapidly. There will be a period of 3 or 4 decades, I believe, before the ultimate irrigation is realized. So during the period when the powerplant is to be amortized we will not have the ultimate drawndown on water for irrigation and more will be available for the generation of power and other purposes.

So I believe that for the period of payout of the powerplant, that the fourth year of a drought is a conservative way of looking at it for our basin.

SECONDARY OR DUMP POWER

Mr. DAVIS. What is the difference between your handling of the marketing of firm power and what you might call your secondary or your dump power?

Mr. AANDAHL. The firm power is sold to customers who need that kind of power. In the Missouri Basin we have had applications from preference customers, that is public bodies and cooperatives, in excess of the amount of firm power that we have for sale.

We agreed to take care of the full load requirements through 1958 for a portion of them, and for another portion of them, selected geographically, 50 percent of their load through 1958.

This firm power which we sell, as our definition has indicated, is power which will take care of the full requirements of the customer, and it is dependable every day throughout the year.

The secondary power, dump power, nonfirm power, is available at spot intervals, and it can be sold only to a customer who has standby generating capacity which is idle while he is using the secondary, or the dump, energy.

The secondary and dump energy is sold for the highest price that we can get for it. We offer it for sale in blocks, and if preference customers want that block they may have it. If they don't want it it will be sold to a nonpreference customer.

If there is no buyer for it at that price it will probably be offered in a block at a lower price and the same procedure followed.

The secondary power is generally thought of as power that will be available probably for a month, 2, 3, 4, 5, or 6 months, and the dump energy is something which might be available for just a few days to release a sizable amount of floodwater that may have suddenly accumulated.

Mr. DAVIS. I would assume, then, that your firm power is where you expect to bear the major burden of your cost?

Mr. AANDAHL. The firm power is the big item that carries the burden of the cost.

Mr. DAVIS. As to dump power you realize a small return on it, and secondary would come somewhere between the two. Is that right?

Mr. AANDAHL. That is about how it will work out. In setting up the rate structure the approach is to calculate or estimate the amount of money that will be received from the sale of secondary and dump power, and that is one component of what is needed for the repayment. Then the rate on the firm power is set at a figure which will make up the balance of the repayment.

FACTORS INVOLVED IN DETERMINING FIRM POWER

Mr. DAVIS. Getting back to this term of firm power again, I am trying to picture the things that go into it once you set a water year, by some arbitrary method or in accordance with some definition set up.

In dealing with any one of these projects on the Missouri, for instance going back again to Fort Peck, you would have to subtract from your available water commitments, first of all, commitments that have been made for irrigation. Does that take priority over your computation of power?

Mr. AANDAHL. Yes.

Mr. DAVIS. Then you also, I would assume, have to take into consideration a computation of commitments that are not needed right now but are going to be required to maintain your navigation level between the mouth and up to Sioux City?

Mr. AANDAHL. Yes. And the water released for those purposes, of course, makes power as it goes by, and it can be part of the component that is used to make firm power. Those factors have all been closely correlated in the studies that have been made.

Mr. DAVIS. I have used the term "irrigation." Then there is navigation commitments, and what you would call a certain normal use by individuals for consumption, industrial and domestic consumption along the line which would have to be taken into consideration?

Mr. AANDAHL. Yes, sir.

Mr. DAVIS. What else, if anything, would need to be taken out of your gross water supply, if you might call it that, in order to arrive at the water that you could depend on for firm power?

Mr. AANDAHL. Again I must say that water for pollution abatement, water for navigation, and a lot of water that is used downstream, even for consumptive purposes, such as irrigation and municipal and industrial use, will generate power as it goes through the dam.

Some of it is taken out from the reservoir above the dam but quite a bit of it is taken out of the stream below the dam so it generates power as it goes by.

All of those factors, and related uses, have been taken into account in the studies that have been made in determining the firm power that will be available.

DEEPENING OF MISSOURI RIVER TO 9 FEET FROM KANSAS CITY TO MOUTH

Mr. DAVIS. You mentioned there are 6 to 7½ feet of navigation area that you depend on at the present time?

Mr. AANDAHL. Yes.

Mr. DAVIS. Is that true up to Sioux City or just to Omaha at the present time?

General POTTER. Navigation goes only to Omaha at the present time, sir. But the plan is to carry it to Sioux City under its authorization.

Mr. DAVIS. So far as Omaha to the mouth is concerned, I gathered from reading of the statement that the structures as they are, and the dredging as it now is, will provide the 9-foot channel all right once you get the water supply stabilized by the completion of the upstream dams. Is that a correct assumption?

General POTTER. No, sir. The structures have been completed to the extent that below Kansas City this year, with normal flows, we can guarantee 7 feet. There are a few places, in the neighborhood of 10, I believe, where enough of the structures have not been completed to assure a complete 9 feet from Kansas City to the mouth.

Between Omaha and Kansas City the prevailing depth this year will be in the neighborhood of 6½ to 7 feet.

The water is adequate, or was adequate last year, and we believe it will be adequate this year, sir, for a 9-foot depth.

Mr. DAVIS. Six and a half to seven feet. Then in talking in terms of 9-foot navigation we have to think of a very substantial dredging or construction, or a combination of both, in order to bring that into practical use. Is that correct?

General POTTER. To bring it to 9 feet, sir; yes. The present rate of appropriations will allow us to complete the stretch from Omaha to the mouth in 10 years.

The present appropriation structure as indicated in this year's budget from Omaha to Sioux City will complete it in 10 years.

I believe it is logical to assume that we could complete the river from Omaha to the mouth in half that time with increased appropriations, and each $2 million, let us say, of annual appropriation gives us enough work to eliminate 1 or 2 of those places where the depth is less than 9 feet.

Offhand, sir, I would say from Kansas City to the mouth about 90 percent of the river has 9 feet now, but the barges must be loaded to go over the few places that are still to be completed.

Mr. DAVIS. When you speak of completing it, you mean having the banks stabilized or do you mean having them suitable for 9-foot navigation?

General POTTER. No, sir. I mean the dikes, the revetments, the channel-constricting structures completed.

Mr. DAVIS. What needs to be done after that? Is it a dredging problem strictly?

General POTTER. No, sir. There will be annual dredging all the time but it will be a very minor amount.

Mr. DAVIS. In the report of this committee for several years has been a statement that the funds are to be used for bank stabilization. Is there anything inconsistent with that in the development of this area for navigation?

General POTTER. No, sir; because two-thirds of the benefits from any work that is done in the Missouri River are to bank stabilization. We have been precluded from putting new work money into purely navigational structures or works.

Mr. DAVIS. We will have to wait and see until some later time, then, what it will cost us to bring this up to the 9-foot authorization level for navigation purposes. Is that correct?

General POTTER. I have those figures, sir, and I will present them during that time.

Mr. DAVIS. At the present time we are not appropriating money or making any firm plans for 9-foot navigation. Is that correct?

General POTTER. I would not say it was correct, sir. Perhaps I could give one example which would clear it up. There is a place in the river where there is still some rock to be taken out to widen the channel to the project depth.

Under the restriction which has been in the bill we would not consider that we could take that rock out.

On the other hand, there are dikes, pile dikes and revetments, which, to do their job of protecting the banks from erosion, must be completed.

Incidentally, they are part of the navigational structure. Those works we do do.

There is hardly a piece of work in the river which in some way will not assist navigation, but, as I say, two-thirds of its benefits are to bank erosion.

Mr. DAVIS. Off the record.

(Discussion held off the record.)

Mr. RILEY. General, in other words, as I understand it, in putting in these revetments you automatically create better facilities for navigation?

General POTTER. That is right, sir.

Mr. RILEY. Because you hold the river within a certain channel instead——

General POTTER. And you preclude it from so eroding the bank that you have a wide but very shallow river, sir.

COST ALLOCATIONS AND REPAYMENT

Mr. PHILLIPS. I hope the committee will bear with me. This is the first time I have heard much of the detail of this particular area.

Referring to the chairman's question, where I made a note about picking up the tab on the other uses and expenditures, do I understand you are furnishing for the record a table which gives the division of the cost between the various features which enter into the area project?

Is this the table to which you referred?

Mr. AANDAHL. Yes; the 1953 study.

Mr. PHILLIPS. Has that been made part of the record?

Mr. AANDAHL. It has been made available to the chairman. I don't know whether or not it is in the record.

Mr. PHILLIPS. Would it be a good idea to put it in the record?

Mr. RILEY. Without objection we can insert it in the record.

Mr. PHILLIPS. Could it be brought up to date? Is this as close as you can come to it?

Mr. RILEY. I understand it is as close as they can come to it.

Mr. AANDAHL. Until we have the new study which will be finished sometime this fall.

Mr. PHILLIPS. Picking up the tab is the subject with which I am somewhat familiar. We have had TVA before us for 9 years.

Mr. AANDAHL. Off the record.

(Discussion held off the record.)

(The statement referred to is as follows:)

MISSOURI RIVER BASIN PROJECT

Total estimated cost

50 reclamation divisions	$3,440,583,000
Fort Peck project transmission	25,061,000
Share of Kendrick project storage	1,116,000
Corps of Engineers program	1,983,067,000
Total	5,449,827,000

Allocation and repayment of cost

Item	Cost allocation	Probable repayment
Irrigation	$2,713,152,000	$661,312,000
Commercial power	874,252,000	2,922,804,000
Municipal water	17,748,000	31,365,000
Fish and wildlife	3,698,000	
Recreation	6,631,000	
Future self-liquidating power	58,176,000	58,176,000
Total reimbursable	3,673,657,000	3,673,657,000
Nonreimbursable flood control and navigation	1,776,170,000	
Allocable project cost	5,449,827,000	

NOTE.—A new study is underway and will be complete in the fall of 1955.

Mr. PHILLIPS. May I ask whether the new study has advanced far enough to give you any indication of what the differences will be, or readjustments in the allocations made on this table?

Mr. AANDAHL. I called particular attention to the fact that the allocation to power will be greater, and the allocation to irrigation will be less, but just how much I would not want to indicate until after the figures have been firmed up.

Mr. PHILLIPS. Then, in Mr. Magnuson's question, he asked this—I didn't understand whether you meant already created in the area or to be created in the area, whether you have a ready market for it.

Was that a question of the power already delivered or when the project is completed?

Mr. MAGNUSON. Yes; because of the higher rate in the western division.

COMPARISON OF FEDERAL POWER RATES WITH PRIVATE UTILITY RATES

Mr. PHILLIPS. What interested me was the reply in which you said you had a ready market.

I am not sure that the ready market is a synonym for competitive power and competitive rates.

How do the rates compare with private utilities rates or private production power in the area?

Mr. AANDAHL. The present rates are somewhat lower for Federal power than the non-Federal rates.

Mr. PHILLIPS. Can you give us the exact figures as to what they are?

Mr. AANDAHL. Let me check that for you, Mr. Phillips.

Mr. PHILLIPS. How much actual competition is there in the area? As a rule these things, either by law or by custom, break themselves into areas geographically.

Mr. AANDAHL. Last spring the Bureau of Reclamation announced blocks of new power which would be available for marketing, both in the western division where the rate is 7.1 mills——

Mr. PHILLIPS. That is private rate?

Mr. AANDAHL. No.

Mr. PHILLIPS. Public rate?

Mr. AANDAHL. The Reclamation rate there is 7.1 mills, and in the eastern division, the rate is 5½ mills.

The applications from preference customers, to whom we have made specific allocations, are in excess of the amount of power that we have for sale, and in addition——

Mr. PHILLIPS. At those rates?

Mr. AANDAHL. At those rates.

And in addition to those applications from preference customers we had quite a number of applications from nonpreference customers, utilities that wanted to buy power at the rate for which we were offering it.

Mr. PHILLIPS. Take a 7.1 mill rate for power. You cannot use that for commercial use, can you? You would have to use it for domestic use? Can you pay it and use it for commercial use?

Mr. AANDAHL. Most of the power that we are selling is going to the preference customers, and that is for domestic use.

Mr. PHILLIPS. I didn't quite understand this every 4-year proposition.

Mr. AANDAHL. Excuse me. It was called to my attention that the power which we sell is sold on a wholesale basis to an agency which distributes it.

Mr. PHILLIPS. I understand that. That makes the 7.1 mills rate very high.

Mr. NIELSON. I think your new steam plants in Los Angeles will have to generate for about 7½ mills.

DETERMINATION OF AMOUNT OF FIRM POWER

Mr. PHILLIPS. It still seems high to me to produce it and market it in small communities, but it may not be.

I do not quite understand, Mr. Secretary, about this every 4-year business. What is the formula?

Mr. AANDAHL. I am not sure if I have the question.

Mr. PHILLIPS. In firming up your power, you have to take it on the basis of the fourth year of a dry season? I don't understand that. Did I misunderstand what you said?

Mr. AANDAHL. The statement I made was this, sir:

That in determining the amount of firm power that would be available for sale in the eastern division of the Missouri Basin, the calculation was based on the water condition that prevailed in 1933, which is not the low year as far as drought conditions are concerned but which is somewhat below the average for the Missouri Basin.

Mr. PHILLIPS. Can somebody clear up what was testified about the fourth year?

Mr. AANDAHL. Yes. In explaining how we happened to use 1933 General Potter made some reference there which probably you would like to have him report.

Mr. PHILLIPS. Do you know what I am asking about, General?

General POTTER. Yes, sir. In making our studies, in conjunction with private utilities. It was not arbitrary on the part of the Federal agencies alone.

We selected the fourth year of a drought as the year that we would consider as producing the amount of firm power that was available.

Mr. PHILLIPS. That is what aroused my curiosity. Where do you get a basis for that? Where do you get authorization for it or basis for it in fact?

General POTTER. It is a problem of experience, Mr. Phillips, experience of the weather of the basin, wherein droughts do happen every now and again, not on a cyclic basis but they happen often enough for us to know that they will happen in the future.

The drought of the thirties, Mr. Phillips, has an experience of about once every 250 to 400 years, so it would be illogical to take the lowest year of that very unusual drought as the one which produced the firm power. It would be unfair to the system.

Mr. PHILLIPS. Is there anyone in the group here representing the Geological Survey, Mr. Chairman?

Does the Geological Survey agree with that?

General POTTER. That study came from the USGS and the Weather Bureau, I believe.

Mr. JOHNSON. The Geological Survey participated in the study of the water supply.

Mr. RABAUT. Where does the 1933 year come in relation to this 4-year period?

General POTTER. That is it, I believe.

Mr. RABAUT. Is that the fourth year of that period?

General POTTER. Yes. The Secretary identified it by a year. I identified it by an occurrence in future droughts or droughts in the past.

Mr. RABAUT. Then that is the fourth year of this drought?

General POTTER. Yes.

Mr. RABAUT. How often does a drought of this proportion happen?

General POTTER. About every 250 to 400 years depending on the part of the basin, sir.

Mr. PHILLIPS. There is a slight conflict of opinion here. The Geological Survey contends that the 1930 drought condition, which you take as an extreme, could occur any time. They do not concur in any statement that when you get up to 1933 or so you have a condition which is better because the other one would recur only every 250 years.

General POTTER. There have been droughts of 9 years' duration, sir, 8, 7, and 6, and shorter periods.

For instance, right now we are——

Mr. PHILLIPS. That doesn't correspond with your previous statement. Your previous statement was that the condition which occurred in, we will say, 1930 or approximately that, would not recur except possibly in a period of 250 years.

General POTTER. That is the frequency.

Mr. PHILLIPS. If you allow for 1933, which is 4 years off of the minimum. Is that right?

General POTTER. I did say that a drought of that intensity, sir, that duration, had a frequency of 250 to 400 years.

Mr. PHILLIPS. The Geological Survey has made, to my knowledge, statements which are not in agreement with that statement, and therefore I believe if we are going to adopt a formula, we should find out what the facts are as to the year we should take for a minimum.

General POTTER. GS was not part of that study. The figures I quote are those upon which the plan is based, sir.

Mr. PHILLIPS. I am not questioning your statement, understand. There seems to be a difference of opinion, however, as to what should be the minimum year, and that becomes extremely important in my next question.

Somewhere here I have a table, a group of tables, which are easier for me to follow.

These tables show, Mr. Secretary, and this is the hydroelectric energy generation of the Missouri River Reservoir, which is in the report on the adequacy of flows in the Missouri River put out in 1951.

General POTTER. That is what I am talking about.

Mr. PHILLIPS. You get here to a point of 5, which is a million kilowatt-hours, on a basis, presumably, of the flow of the river.

Here you have run for a long period on a very high average. Apparently what takes place is a depletion or dry spell, and you come down to here [indicating].

In the testimony this morning I gather that you are taking a higher point, at which you presume you can furnish energy. I see no basis for your doing it. I think you have to take the low point.

Mr. AANDAHL. Might I make a statement here?

Mr. PHILLIPS. Yes.

Mr. AANDAHL. I do not think that there is any particular conflict between the hydrology of the river and the estimated generating capacity of the water that will flow through the river. The only question that is involved, as I see it, as it centers around this discussion, is whether or not in the marketing of that hydroelectric power we should proceed with the idea of buying a certain amount of steam power during low water years.

Now, then, if we are going to buy any steam power during low water years, whether we use as our breaking point the average water year or the fourth water year, the fourth year of a drought, doesn't make too much difference.

Mr. PHILLIPS. It does to some customers, I would think.

Mr. AANDAHL. No, as long as the Federal Government in selling power can supply the power that it has contracted to deliver.

It makes no difference to that customer whether he gets it as hydroelectric power or gets it as a combination of hydroelectric power and some steam power that has been picked up to firm it.

Mr. PHILLIPS. Wait a minute now. That is an entirely different problem. You contemplate in this whole project, then, the purchase of sufficient steam power to do what you call firming up the power; a producible minimum that is, above what might be produced by hydroelectric power?

Mr. AANDAHL. In the low water year; yes.

Mr. PHILLIPS. In the low water year?

Mr. AANDAHL. Yes. That can be handled without too much difficulty by buying offpeak steam to firm up the hydro.

Mr. PHILLIPS. Buy it or produce it?

Mr. AANDAHL. Buy it.

Mr. PHILLIPS. You do not contemplate putting in steam plants, then?

Mr. AANDAHL. No. We have taken a very firm position against Federally owned steam plants.

IRRIGATION DEPLETION

Mr. PHILLIPS. On this depletion problem, what variation do you anticipate between the present depletion and future depletion? Have you any figures on that?

General POTTER. I think that study indicates them, Mr. Phillips. The buildup of the irrigation is a major depletion.

Mr. JOHNSON. In making that study we carried through simulated reservoir operation studies for varying degrees of irrigation depletion. The ultimate irrigation depletion was estimated by the Bureau to be around 8½ million acre-feet.

Mr. PHILLIPS. You see, Mr. Johnson, from where you are sitting you can see what I am looking at. You see what gives me concern at the moment, and should give us all concern—this narrow blue line right here as compared to all these other lines up at the top. What year is it that I am looking at?

Mr. JOHNSON. This year is 1944.

Mr. PHILLIPS. It has been down?

Mr. JOHNSON. This is just a simulated study, assuming that the reservoirs were in, and taking a past period of record in operating the reservoir to try to show how the system would have operated.

Mr. PHILLIPS. I don't want to take up the committee's time with something which, had I been on the subcommittee in the past, I would not have to discuss.

AMOUNT OF POWER TO BE PRODUCED

I think from the testimony this morning, you are allowing for more power, delivery of more power than you can deliver, more than your own studies, or the custom of this river would give you a right to estimate. If you do that, then that enters not only into the appropriations of this subcommittee but it enters very definitely into the charges you are going to make for power, if you are going to pay off the cost of the project from the production of electric power.

It is a little complicated, but you get what I am driving at?

General POTTER. Yes, sir. Our feeling is that for the bulk of the years, the large bulk of the years, the amount of firm power will be available. After the fourth year of a drought then there will be a lesser amount available, but the project as a whole should not be based firm-powerwise on those very infrequent happenings.

Mr. PHILLIPS. Don't you expect to have to pay for this power you get to deliver to the customers to firm up what your contracts call for?

Mr. AANDAHL. Yes; that is correct, and that is an item which must be considered in working out the rate schedules.

Mr. PHILLIPS. Have you taken that into consideration in working out the rate schedules?

Mr. AANDAHL. As I say, we have not made a restudy of the rate schedule. That is something we will have to do sometime in the future.

I presume, however, that a factor of that kind was included in the previous study under which the rate which we now have was established.

IRRIGATION DEPLETION

Mr. PHILLIPS. I am not sure I have on the record, as I would like to have it, the difference between the depletion now and what you expect to have it, and what effect that will have on the delivery of power. Do you think that the record is clear on that point, as to what you expect the depletion to be and how low you expect it to go?

Mr. AANDAHL. The regional director says he has an answer for that.

Mr. CLINTON. In this simulated study that Mr. Johnson mentioned a while ago, they have used recorded flows in that study as their starting point. Those recorded flows reflect all of the irrigation depletions and other depletions up until that time.

Mr. PHILLIPS. Are you as accurate on those as you were in the flow of the Colorado River in 1922?

Mr. CLINTON. The Geological Survey made the streamflow measurements which are basic data used in the studies. The studies have included an estimated depletion to cover a little over 4 million acres to be added by the end of the pay-out period, with a gradually increasing amount each year, or, as Mr. Johnson said, to about 8 million acre-feet of reduction in flow ultimately.

AMOUNT OF FIRM POWER

Mr. PHILLIPS. What is the figure for firm power now?

Mr. CLINTON. I don't recall it.

Mr. PHILLIPS. Do you know, General?

General POTTER. Not offhand.

Mr. AANDAHL. I haven't it here.

Mr. PHILLIPS. Will you insert it?

Mr. AANDAHL. Yes.

(The information requested is as follows:)

The three powerplants on the main stem now producing power are Canyon Ferry, Fort Peck, and Fort Randall. The firm power available from these plants as of April 1, 1955, is 261,000 kilowatts.

Mr. PHILLIPS. I think that has a very direct bearing on the amount chargeable for power and therefore as to how long it will take to pay off the cost.

BASIS FOR POWER ESTIMATES

Mr. RILEY. Mr. Secretary, how has the formula worked up until now? How much power have you had to purchase from steam plants to fulfill your contracts up to the present time?

Mr. AANDAHL. In the Missouri Basin we are just beginning to contract for the power. The Garrison and Fort Randall powerplants

are just coming into production, so we have really had no experience.

Mr. RILEY. The plants that you have have produced the power so far that you have been able to sell. Is that right?

Mr. AANDAHL. Of course there are a number of older plants from which the Bureau of Reclamation has been selling power for quite a number of years, but the plants that are involved in this river flow circumstance which we have just been talking about are just coming into production. We have had no experience with those.

Mr. RILEY. So this formula is the best formula that you have been able to set up thus far, but you have not been able to determine as yet whether or not it will work. It is still theoretical. Is that right?

Mr. AANDAHL. It is without experience in the eastern division of the Missouri Basin, that is, actual experience. I am sure that it will need some modification from time to time, and we expect some modification in this study currently being made, and I imagine 3 or 4 years later, when we have had a little more experience, we will want another study and that will have some further modification.

Mr. RILEY. Is that not true of practically all of human endeavors, that we project a proposition based on the best information we have, and then we have to come back and modify it to meet changing conditions or to meet conditions which are not foreseen?

Mr. AANDAHL. That is just the way we make progress. We do the best we can with what we have at the time, and as time changes we modify and adjust.

Mr. PHILLIPS. Mr. Chairman, with this difference—that is this particular section of the Government they must inherit from their predecessors the mistakes, constructive and otherwise, and the good and bad. You cannot change rapidly. You have to take what you have.

Mr. RILEY. I believe the testimony shows, though, Mr. Phillips, that they have no experience so far to counteract the formula they have set up.

Is that right?

Mr. AANDAHL. We have had no experience in operating these powerplants which have been under discussion.

Mr. RABAUT. This draft from which you have been reading is only a proposed draft; is it not?

Mr. PHILLIPS. What Mr. Johnson called a simulated idea of what might take place if certain construction had been completed.

Mr. RABAUT. Judging from the past.

Mr. PHILLIPS. And projecting into the future.

Mr. RABAUT. Does it take into consideration the impounding of certain waters?

Mr. AANDAHL. Yes. It takes into consideration the effect that the storage reservoirs will have in leveling out the varying flows of the river from year to year.

Mr. RABAUT. And also the uses to which the water will be put at times?

Mr. AANDAHL. That is correct.

Mr. RABAUT. You referred to preference customers.

Mr. AANDAHL. Yes, sir.

Mr. RABAUT. At a mill rate of 7.1?

Mr. AANDAHL. That is in the western division of the Missouri Basin.

Mr. RABAUT. That is on a wholesale basis; is it not?

Mr. AANDAHL. Yes.

Mr. RABAUT. So it goes both to commercial and domestic consumers; is that correct?

Mr. AANDAHL. That is correct.

Mr. RABAUT. Is there any study as to how that is broken down?

Mr. AANDAHL. I don't think we have any breakdown on the retail uses of the power.

Mr. RABAUT. With the shift of irrigation, or with the new studies on irrigation and projected payments into long periods of time over and above the normal 40 years, it throws a greater burden upon the power features of these projects, that is the cost burden. Is that right?

Mr. AANDAHL. I am not sure if these renegotiated contracts on the older irrigation projects involve any additional charge to power or not. I am rather inclined to think that that remains about the same. It is just an extended period for the amount of payment that the water users themselves are to make.

Mr. RABAUT. Is that your understanding of it?

General POTTER. Yes, sir.

Mr. RABAUT. Because that is important.

Mr. AANDAHL. I might say that the renegotiation of these contracts with water users is something which has been in progress for quite a number of years, beginning in 1926. It is something which has been going on for quite a long time.

REGULATION OF RESALE PRICE OF POWER

Mr. PHILLIPS. There were two questions which would follow in continuity here.

When you sell this power, which is a wholesale price of 7.1 or 5.5, do you make any effort whatever to control the price at which it is resold by the preferred customers, or by anyone who buys it from you?

Mr. AANDAHL. In our power marketing criteria for the Missouri Basin we have declared that we will not attempt to regulate the resale price among the preference customers, but in the case of utilities——

Mr. PHILLIPS. Public or private?

Mr. AANDAHL. In the case of private utilities we expect them to transfer any savings that they make in the purchase of this public power to their customers and reserve the right to check their rate schedules and to see that that provision is complied with.

Mr. PHILLIPS. Do not these areas have public utility commissions the same as most States have?

Mr. AANDAHL. That is correct.

Mr. PHILLIPS. Then why do you have to do that?

Mr. AANDAHL. I do not think that we have a very urgent responsibility there. We reserve the right to do it. I do not think there will be much occasion to use that right.

Mr. PHILLIPS. The other question I had had to do with this matter of firming up the power, which always intrigues me.

What authority do you have? Is your General Counsel here? What authority do you have to make a contract which requires the Federal Government to go out and buy power to fulfill that contract?

Mr. AANDAHL. My statement again will be substantially as I made it a little while ago, which is that any contacts that I have had indicates that there are opinions both ways as to the legal authority. All I can say is that over a period of a good many years it has been done, and Congress has appropriated money in our budget to purchase steam power.

We are doing it as a matter of practice. I do not think I can point to any specific language in the statute which says we are authorized to do it.

I am not sure that there is any language in the statute which would prevent us from doing it. It is part of the marketing process as it has grown, and we are definitely assigned the responsibility of marketing the power.

Mr. PHILLIPS. How essential is it in order to sell the amount of power you will produce from this completed program, that you be able to furnish bought power? Why can't you contract to furnish the power that you produce?

Mr. AANDAHL. I would say that my inclination is to keep the purchases of steam power down to a minimum. I would like to see the Federal Government hold pretty closely to just marketing the hydroelectric power that it has and let the customer work out ways and means of firming it up with other power resources in the area.

But this other approach has been used quite extensively in the past. It has some merits. I do not think it would be wise to deviate too far from a pattern that is pretty well established, although I must say that the tendency at the present time is to hold the contracts and the new arrangements that we are making to such a form that there will be a minimum of purchase of steam power to put into the marketing arrangement.

Mr. RILEY. Mr. Secretary, you testified that so far, as I understand it, we have not had to purchase steam power because these plants are not producing.

Mr. AANDAHL. That is only with respect to this new area along the main stem of the Missouri River, what we call the eastern division of the Missouri Basin.

Mr. RILEY. I see.

Mr. AANDAHL. Over in the western division we have been purchasing steam power and operating some of those plants for quite a considerable time.

Mr. RILEY. Is it not good business and does it not save the Government money to be able to sell a certain amount of firm power and therefore amortize these projects which have been set up for flood control, irrigation, and other purposes? It saves the Government money in the long run, does it not?

Mr. AANDAHL. It is important that we work out a marketing pattern under which we can get a reasonably good price for the power

which we have for sale. I think experience indicates that a reasonable amount of steam power purchased does facilitate the effective marketing of the power.

Mr. PHILLIPS. How much do you pay then, for this power? Do you get it for less than 7.1 and 5.5 mills?

Mr. AANDAHL. The steam power that is used for firming is generally off-peak steam and it is bought at a price less than the price for which we are selling our firm power.

Mr. PHILLIPS. Are you testifying that a private utility out there in that area can sell you power for less than the charge which you make to the customer?

Mr. AANDAHL. We can buy off-peak power for a lower figure.

Mr. PHILLIPS. But that is not the time that your customer is troubled about whether or not he has firm power?

Mr. AANDAHL. Well, when we have the limited amount of water we hold that water in the reservoir for the peak hours of the day when we cannot get the steam, and we buy the steam power for the offpeak hours.

Mr. PHILLIPS. Then you produce a problem in the operation of your generators. Is that correct, General?

General POTTER. No, sir. We operate our generators on their demand. The plants he is talking about are entirely Bureau plants.

Mr. PHILLIPS. You cannot build the generators up or down to suit a river without uneconomic handling, can you?

General POTTER. That is why we have Gavins Point, sir. We peak out at Fort Randall, for instance, and then dampen the flow at Gavins Point where we will have constant generation.

Mr. AANDAHL. The plan for intergrating the hydro to a certain degree as peaking power with the purchase of offpeak steam is worked out in detail with the Corps of Engineers so far as it affects their plants, and the plan for marketing is closely integrated with the operational requirements which the corps has for their reservoirs.

Mr. RILEY. Mr. Secretary, as I understand it, it is mutually beneficial both to the companies which generate steam power and to the Government, because you take their off-peak power from the steam plants which gives them additional income, and then you sell them some of your additional power when you have an excess of power. As I see it, it amounts to an interchange between the Government and the private companies beneficial to both of them.

Mr. AANDAHL. A reasonable market for offpeak steam power is an economic value to the entity which has the steam plant. The greatest efficiency out of the steam plant comes when it can be operated at very high load factor, running pretty much around the clock.

Mr. RILEY. They would lose money if they had to cool off their boilers and then start them back up again.

Mr. RILEY. Mr. Davis will resume his interrogation.

Mr. AANDAHL. Mr. Chairman, off the record, please.

Mr. RILEY. Yes.

(Discussion off the record.)

Mr. RILEY. Mr. Secretary, in giving us a breakdown of the new tentative allocations, I should appreciate your including the power rates based on the 1953 report also, so that the committee will have the benefit of a comparison between the two.

Mr. AANDAHL. You are speaking now about the analysis that we are to prepare to show the relationship of the aid to irrigation that comes out of the power?

Mr. RILEY. And the cost of the power itself.

Mr. AANDAHL. Yes, sir; we will be glad to do that.

Mr. RILEY. Thank you.

(Note: This information appears on p. 13.)

Now, Mr. Davis.

COMMERCIAL TRAFFIC ON THE MISSOURI

Mr. DAVIS. Referring to the statement which you submitted to the committee earlier today, Mr. Secretary, on page 4 in the final paragraph you use the words, "commercial traffic" in referring to the Omaha to the mouth stretch of the Missouri. Is that entirely what we call traffic in the private channels of trade, or would that include Government traffiic, as well?

Mr. AANDAHL. I believe I will ask General Potter to reply to that.

General POTTER. That is tariff-bearing traffic, sir. It is entirely private, entirely private in private bottoms and it is private material.

Mr. DAVIS. It would not include at any time, then, building material, or anything of that nature which might be used by contractors for the corps in various stabilization and construction works on that portion of the Missouri River?

General POTTER. It does not, sir; and not only that, it does not include sand and gravel dredged for commercial ventures. It is purely iron, steel, molasses, sulfur, and that sort of thing.

STATUS OF PROJECTS IN THE MISSOURI BASIN

Mr. DAVIS. On page 8 of your statement you gave us some information with respect to the completed projects and some of those that were in progress.

I would like to ask that there be prepared, for later submission, a list of the projects in the Missouri Basin in their various stages, which I will mention in a minute, with the cost of each of them.

For instance, there are four categories that I would like to ask be included in the list: First, all completed projects and then the actual cost of each of them; the second category would be those under construction at the present time with the best estimate of the cost of them; the third category would be those which have been authorized with the best estimate of the cost; the fourth category would be those which have been proposed, but which are not authorized, with the best estimate of cost that can be given for them.

In other words, that would give a pretty good overall picture in the record of the various contemplated, completed, or in process projects in the Missouri Basin.

Mr. AANDAHL. Do you want those for both the corps and the Bureau of Reclamation?

Mr. DAVIS. Yes; in the basin.

Mr. AANDAHL. We will have to work that out together.

Mr. DAVIS. Will there be any difficulty in getting that information together?

General POTTER. As to No. 4, sir, how do you define "proposed"?

Mr. DAVIS. You have a map up there on which you have some blue lines. What is that category?

Mr. LARSON. Those under consideration in lieu of authorized.

Mr. DAVIS. In lieu of those which have been authorized?

General POTTER. Some of those are in that category.

Mr. DAVIS. Are there not a number of projects that you have considered as being part of the overall plan for the control of the water in this basin that have not been authorized by Congress?

General POTTER. Yes, sir. As an example, on the Grand River in Missouri we have a plan that has practically, as far as the basin is concerned, been completed. This is in the report of the Chief, but that does not mean that it has gone over to the Bureau of the Budget or been submitted to the Congress, sir. That is why I was interested in your definition.

Mr. DAVIS. I am glad to get that information because I had been under the impression that there were a number of projects that were included in what was called the Pick-Sloan plan that Congress has not yet authorized. Am I correct about that, or have they been included?

General POTTER. They are not yet included in it.

Mr. DAVIS. What do you mean by that, that they are not included?

General POTTER. They cannot be included in it until they have been authorized, Mr. Davis.

Mr. DAVIS. That is right.

General POTTER. And we cannot say that the Congress will authorize them.

Mr. PHILLIPS. Would the word "recommended" be better?

General POTTER. Some of them have not been recommended yet, sir.

Mr. PHILLIPS. How can you get Mr. Davis' picture complete without some indication of what is in the overall project as a complete unit?

General POTTER. Some of these projects are still on paper, sir. They have not been completely studied out, but we are fairly sure we will recommend them within the next several years.

Mr. DAVIS. Well, anything that this map shows in blue would represent a revision of the overall plan to the extent that it would be a substitution for one or more other projects which have been authorized and which are in the original overall plan, is that correct?

General POTTER. Yes, sir, largely correct.

Mr. AANDAHL. Mr. Chairman, I wonder if we might use the wording, "under substantial specific study" to cover the category which you have in mind?

Mr. DAVIS. Is this statement true, that there is not now under consideration any project, to refer to your phrase, "under substantial consideration," which is entirely in addition to the original overall plan for the basin?

Mr. AANDAHL. I do not think we have any in that category in Reclamation.

Mr. DAVIS. Then probably it would be better to simply leave out the fourth category which I mentioned and ask you, in order that the committee does have as complete and up-to-date a picture as possible, if you will, in connection with the third category to give those which have been authorized but not yet funded, and indicate where plans are pretty well along for alteration of the authorizations that now exist in connection with them. You have indicated that there are a number of cases in which there is a well developed or suggested plan within the Bureau, or the corps, for a number of projects which would be in substitution for some of those which are now authorized.

(The matter referred to is as follows:)

CORPS OF ENGINEERS PROGRAM

Missouri River Basin

I. PROJECTS COMPLETED

	Estimated Federal cost
Navigation: Missouri River, Sioux City to Fort Benton	$517,000
Flood control:	
Cherry Creek Reservoir, Colo	14,567,300
Council Bluffs, Iowa	2,558,000
Hamburg, Iowa	236,000
Kanopolis Reservoir, Kans	12,297,000
Forsyth, Mont	255,200
Glasgow, Mont	16,800
Bartley, Nebr	118,300
Harlan County Reservoir, Nebr	45,268,000
Indianola, Nebr	67,300
Omaha, Nebr	5,896,400
Schuyler, Nebr	75,000
Mandan, N. Dak. (1946, 1949, and 1950 authorizations)	552,000
Belle Fourche, S. Dak	37,400
Multiple purpose including power: Fort Peck Dam, Mont	133,900,000

II. PROJECTS UNDER CONSTRUCTION

Navigation:	
Missouri River Channel stabilization:	
Kansas City to the mouth	119,000,000
Kansas City to Omaha	111,600,000
Omaha to Sioux City	103,000,000
Flood control:	
Missouri River agricultural levees	156,200,000
Kansas Citys, Mo. and Kans	45,600,000
Tuttle Creek Reservoir, Kans	89,900,000
Topeka (north unit), Kans	12,800,000
Chariton River, Iowa and Mo	3,400,000
Havre, Mont	1,950,000
Missouri River, Kenslers Bend, Nebr., to Sioux City, Iowa	10,700,000
Fall River Basin, S. Dak	4,600,000
Multiple purpose including power:	
Gavins Point Reservoir, Nebr. and S. Dak	53,000,000
Garrison Reservoir, S. Dak	279,000,000
Fort Randall Reservoir, S. Dak	195,000,000
Oahe Reservoir, S. Dak. and N. Dak	321,000,000

III. PROJECTS NOT YET STARTED

Navigation: Big Sioux River, Iowa and S. Dak	844,000
Flood control:	
Boulder, Colo	551,000
Chatfield Reservoir, Colo	32,600,000
Erie, Colo	59,000
Little Sioux River, Iowa	16,500,000
Mystic, Iowa	46,000
Rathburn Reservoir, Iowa	20,100,000
Sioux City, Iowa	1,230,000
Abilene, Kans	549,000
Fort Scott Reservoir, Kans	15,300,000
Garnett Reservoir, Kans	14,200,000
Hillsdale Reservoir, Kans	8,550,000
Lawrence, Kans	2,610,000
Manhattan, Kans	1,400,000
Marysville, Kans	313,000
Melvern Reservoir, Kans	19,500,000
Milford Reservoir, Kans	39,300,000
Merriam, Kans	371,000
Osawatomie, Kans	662,000
Ottawa, Kans	2,990,000
Perry Reservoir, Kans	16,500,000
Pomona Reservoir, Kans	13,500,000
Salina, Kans	1,390,000
Hackleman Corner Reservoir, Mo	15,700,000
Pomme de Terre Reservoir, Mo	22,500,000
Kasinger Bluff Reservoir, Mo	98,500,000
Billings, Mont	3,800,000
Harlem, Mont	85,000
Miles City, Mont	1,290,000
Saco, Mont	97,000
Battle Creek, Nebr	348,000
Beatrice, Nebr	491,000
Giles Creek (Tilden), Nebr	506,000
Hubbell, Nebr	11,000
Norfork, Nebr	2,720,000
Pierce, Nebr	214,000
Waterloo, Nebr	107,000
Westpoint, Nebr	157,000
Lower Heart River, N. Dak	1,870,000
Marmarth, N. Dak	230,000
Sioux Falls, S. Dak	3,650,000
Buffalo, Wyo	643,000
Dayton, Wyo	121,000
Greybull, Wyo	743,000
Sheridan, Wyo	2,360,000
Morrison, Colo. (deferred)	686,000
South Platte agricultural levees, Colorado (deferred)	31,800,000
South Platte Channel improvement, Colorado (deferred)	
Pioneer Reservoir, Kans. and Colo. (deferred)	20,000,000
Arlington Reservoir, Mo. (deferred)	27,200,000
Red Willow Reservoir, Nebr. (deferred)	12,500,000
Castlewood Reservoir, Colo. (inactive)	14,400,000
Denison, Iowa (inactive)	62,000
Chillicothe Reservoir, Mo. (inactive)[1]	65,800,000
Monarch, Wyo. (inactive)	240,000
Multiple purpose including power:	
Fort Peck Dam, Mont. (2d powerplant)	24,400,000
Stockton Reservoir, Mo	39,000,000
Big Bend Reservoir, S. Dak	71,500,000
Richland Reservoir, Mo. (deferred)	33,300,000
Grand total	2,429,207,000

[1] To be superseded by a system of 6 reservoirs and channel improvements and levees.

Bureau of Reclamation

Missouri River Basin project—Status and estimated obligations of active units

Unit or division	State	Total obligations	Remarks
COMPLETED			
Kortes	Wyoming	$13,735,254	
UNDER CONSTRUCTION			
Angostura	South Dakota	14,188,798	Includes minor completion work in fiscal year 1956.
Bostwick	Nebraska-Kansas	48,065,443	
Boysen	Wyoming	33,953,000	Do.
Buford-Trenton	North Dakota	300,000	
Canyon Ferry	Montana	28,423,701	Includes minor completion work in fiscal year 1955.
Cedar Bluff	Kansas	19,254,849	Dams and reservoirs complete. Irrigation facilities only under construction.
Crow Creek	Montana	1,810,615	Includes minor completion work in fiscal year 1956.
Dickinson	North Dakota	1,575,000	Includes minor deferred work after fiscal year 1956.
Fort Clark	do	706,500	Includes minor completion work in fiscal year 1956.
Frenchman-Cambridge	Nebraska	69,702,921	Dams and reservoirs complete. Irrigation facilities only under construction.
Glendo	Wyoming	44,300,000	
Hanover-Bluff	do	3,383,000	
Heart Butte	North Dakota	6,253,000	Do.
Helena Valley	Montana	11,962,287	
Jamestown	North Dakota	3,847,000	Includes minor completion work in fiscal year 1956.
Keyhole	Wyoming	4,797,204	Includes minor completion work in fiscal year 1955.
Kirwin	Kansas	18,995,552	
Lower Marias	Montana	65,837,305	
Rapid Valley	South Dakota	8,774,901	
St. Francis	Colorado-Kansas	16,919,255	
Sargent	Nebraska	16,131,273	Dams and reservoirs complete. Irrigation facilities only under construction.
Savage	Montana	505,394	Includes minor deferred work after fiscal year 1956.
Shadehill	South Dakota	8,452,000	Includes minor completion work in fiscal year 1956.
Transmission	Various	312,705,895	
Webster	Kansas	17,842,404	
Completion reports and as-built drawings.		21,500	
Subtotal		758,708,797	
ADVANCE PLANNING			
Ainsworth	Nebraska	25,981,000	A report will be completed in fiscal year 1955 and submitted to Congress in accordance with Public Law 612, 83d Cong.
Benkelman	do	3,049,000	
Chestnut Valley	Montana	859,000	
Clarkston	do	422,000	
East Bench	do	21,266,000	Plans for Clark Canyon Dam well advanced. High local interest.
Farwell	Nebraska	31,802,000	Definite plan report scheduled in fiscal year 1956.
Garrison diversion	North and South Dakota.	421,823,000	Plans well advanced. Definite plan report scheduled in fiscal year 1957.
Glen Elder	Kansas	41,991,000	
Great Falls	Montana	3,166,000	
Hardin	do	12,684,000	Plans well advanced.
Hardscrabble	do	433,000	
Hudson Bench	Wyoming	3,010,000	
Kanapolis	Kansas	12,227,000	
Lavaca Flats	Nebraska	963,000	Definite plan report scheduled in fiscal year 1957.
Madison unit	Montana	14,134,000	
Mirage Flats extension	Nebraska	7,219,000	
Missouri diversion	Montana	60,161,000	Definite plan report approved for diversion dam only, October 1952.
Moorhead	Montana-Wyoming	31,756,000	Plans well advanced.

Missouri River Basin project—Status and estimated obligations of active units—Con.

Unit or division	State	Total obligations	Remarks
ADVANCE PLANNING—Con.			
Narrows	Colorado	$45,630,000	Field data for dam completed and plans for dam well advanced.
Nickwall	Montana	922,000	Definite plan report approved July 1953.
North Loup	Nebraska	38,372,000	
North Republican	do	2,569,000	
Oahe	South Dakota	250,400,000	
O'Neill	Nebraska	60,690,000	
Owl Creek	Wyoming	3,513,000	Definite plan report approved November 1950.
Sadie Flat	Montana	1,927,000	Plans well advanced.
Shoshone extensions	Wyoming	48,732,000	Definite plan report scheduled in fiscal year 1957.
Shoshoni	do	3,463,000	
Shotgun	Montana	3,814,000	
Sun extensions	do	2,680,000	
Teton slope	do	16,371,000	
Ulm	do	826,000	
West Bench	do	1,743,000	
Williston	North Dakota	2,238,000	
Wilson	Kansas	15,425,000	
Yellowtail	Montana	95,721,000	Definite plan report approved November 1950.
Subtotal		1,287,982,000	
MISCELLANEOUS			
Operation and maintenance during construction (completed units).		765,583	
Other departmental agencies.		97,950,000	
Grand total (fiscal year 1956 justifications).		2,159,141,634	

FLOOD PROTECTION IN THE KANSAS CITY AREA

Mr. DAVIS. I gather from the statement which appears near the middle of page 6 of Governor Aandahl's statement that no amount of local flood protection in the Kansas City area can provide complete protection from flood for that metropolitan area. Is that correct, General Potter?

General POTTER. Yes, sir; without the reservoirs.

Those walls and levees are as high as they can be built, and still be acceptable to the local people. We would have to put on top of those walls up to another 10 feet to take care of a flood of the size of the 1951 flood and the transposed flood which would be larger.

Mr. DAVIS. Do you consider the existing local protection structures as being adequate for the protection of the area, as far as the waters of the Missouri River are concerned?

General POTTER. Yes, sir; as far as the waters of the Missouri are concerned.

Mr. DAVIS. So that it boils down now to this, that in order to complete the protection of that area you have to put structures on the Kansas River and its tributaries?

General POTTER. Yes, sir; and may I also add that it is not just Kansas City, but also Lawrence, Topeka, Manhattan, and the agricultural area in between.

Mr. DAVIS. What structures have so far been completed on the Kansas and its tributaries?

General POTTER. Kanopolis by the corps and Cedar Bluff upstream from Kanopolis by the Bureau of Reclamation. They are operated as a team, and in 1951 they operated perfectly as a team.

Harlan County on the Republican River, and above Harlan County there are about 4 or 5 Bureau of Reclamation reservoirs. Will you indicate those names?

Mr. CLINTON. Bonny, Enders, Swanson Lake, and Harry Strunk Lake.

General POTTER. The Bureau of Reclamation also has two under construction.

Mr. PHILLIPS. They are on which tributaries?

General POTTER. The names of those just given, sir, are on the Republican River. The two under construction, Kirwan and Webster are on the Solomon.

Mr. DAVIS. I recognize it would have to be a very rough estimate, but can you give us your opinion as to the percentage or portion of water control on the Kansas we now have with those completed reservoirs? Speaking of it now from the standpoint of the Kansas Citys, what portion of protection have we achieved so far by what we have completed on the Kansas River?

General POTTER. As far as effectiveness on the city of Manhattan downstream is concerned, I would say that it is about 10 percent, that is, in effectiveness.

Mr. JOHNSON. The most humid part of the basin is in the eastern part, of course.

General POTTER. I call your attention to those light gray lines which I was asked about this morning. You will notice that the 30-inch line goes right down to Tuttle Creek, the western part of the basin, and the 18-inch line is here [indicating].

Mr. PHILLIPS. Will the demonstrator please put his marker on Topeka?

General POTTER. The 36-inch line, sir, goes through Kansas City.

Mr. DAVIS. Apparently those which have been constructed on the Kansas River or its tributaries thus far are up in the area where water conservation is of a lot more significance than any flood protection for the downstream areas and cities.

General POTTER. To my way of thinking, Mr. Davis, the most important problem that faces the Kansas Basin at this time, in view of our experience in the last 2 drought years, is going ahead on a plan that will assure the retention of the maximum amount of water in the basin for the use of the people in the basin.

Mr. PHILLIPS. I am not sure that that answers Mr. Davis' question.

General POTTER. I am sorry. Did you mean as to the conservation performed, that it was conservation of water?

Mr. DAVIS. Yes; that is what I meant. What has been done in the basin thus far has not been done primarily to protect the people downstream?

General POTTER. No, sir.

Mr. PHILLIPS. When was the last flood in that area?

General POTTER. In 1951, sir.

Mr. PHILLIPS. You have not had one since?

General POTTER. We have not had a flood on the Kansas since 1951, and that was the biggest flood for the river. It was almost twice as large as the 1903 flood, which started the movement for flood control in that area.

POLICY ON NEW TRANSMISSION LINES

Mr. DAVIS. On page 9 in the top paragraph on that page you mention three new transmission lines which are proposed, and then the statement is made that:

> Advantage is being taken of existing lines of private and public utilities wherever practical, through wheeling arrangements, and the construction of lines by local entities.

I can recall a couple of years ago where we had quite a hassle on the House floor over an amendment which, I believe, would have restricted the construction of new transmission lines to those cases where there were no existing private lines in the immediate area. Does that ring a bell with you, Mr. Secretary?

Mr. AANDAHL. Yes. I recall it is subject to difference of opinion.

Mr. DAVIS. What kind of standards do you use now as to whether it is practical to arrange to use existing lines of utilities?

Mr. AANDAHL. If there is a line in the area that has the capacity to carry the power that needs to be delivered, we generally do not have difficulty in working out satisfactory wheeling arrangements.

If there is not a facility in the area that has the capacity, ofttimes the local interests will increase the capacity, and if they are willing to do that we are very glad to work out wheeling arrangements with them.

If neither one of those conditions prevail we sometimes need to recommend the construction of a line, and also where the Bureau has started the construction of lines intended to form a loop, we will recommend the completion of the remaining link in order that there will be a full loop.

Mr. DAVIS. Is the rate for wheeling of electric current something that is now pretty well a standard thing so that it is fairly easy to judge whether or not the people with whom the Government might wish to negotiate these contracts are being fair and reasonable in the setting of their prices?

Mr. AANDAHL. In the Missouri Basin we have gotten pretty well along on the arrangement of having systemwide wheeling contracts with the utilities in the marketing area at a flat 1-mill rate.

Under such a wheeling contract they will have some deliveries that are relatively short and some that will be quite distant.

Of course, we must recognize that in those deliveries there is sometimes an exchange of power that takes place and it is not actually the Federal kilowatt that moves all the distance.

Mr. DAVIS. So far as this basin is concerned, then, there are no particular difficulties or any particular circumstances which you can think of now, where existing lines are available, which would justify the Government in seeking to go out and build other lines in that same area?

Mr. AANDAHL. The lines that we feel we need to add in the 1956 budget are these three which have been mentioned in the paragraph to which you just referred.

Mr. DAVIS. There are no existing lines in the area at this time so that these in any way could be termed as supplanting?

Mr. AANDAHL. No. I am quite familiar with the proposed line from Fort Randall to Neligh, and the people of the local area are very much interested in having such a line constructed.

In fact the local people are pushing pretty hard for a larger line, for a 230-kilovolt line instead of 115, and ultimate extension to the center of Nebraska instead of the short 115-kilovolt line we are proposing.

The line from Fargo to Grand Forks in North Dakota is another step in completing the loop in North Dakota, and it will join with the 115-kilovolt line coming across from the Northwest and complete that loop.

The other one, which is the Alcova-Fremont line is the short line which will be needed to bring the power into the marketing area from the new plant at Fremont.

Mr. DAVIS. What is the theory on which the Government gets into this kind of business? Is it Government power which is otherwise not marketable? Is that the justification under which the Government moves in to construct the transmission lines?

Mr. AANDAHL. I don't know if I am in a position to explain all of the thinking that might have taken place in the past in establishing these programs for the Federal transmission of power.

I might say that in an area such as the main stem of the Missouri Basin about which we are talking, where a whole series of sizable hydroelectric plants were built in the course of a very few years, that a volume of power was thrown into the area which needed fairly long-distance transmission, both to interconnect the powerplants themselves and provide for their most effective use in the production of power, and also for the distribution to load centers that would have been rather difficult for local entities to take care of.

There was just a tremendous volume of a new type of thing which had to reach out into a sizable marketing area.

I think that for the most part in that area there has not been too much difference among the different groups at the local level, those interested in public power and the private utilities in the need for this trunk transmission system.

There has been some tendency in spots for it to get a little bit beyond that basic scope, but there was a foundation transmission grid which was quite essential to market this large volume of power in that area.

On the other hand I know there are spots where perhaps it has gone a little too far and we have some things that we shouldn't have.

Mr. DAVIS. What kind of amortization schedules do we have on Government-constructed transmission lines?

Mr. AANDAHL. The rates are set up in anticipation of amortizing the Federal investment in transmission in 50 years with interest. That is the general basis that is used for power rates for the generating facilities, also.

Mr. DAVIS. Ordinarily, would it be said that the Government doesn't build these transmission lines unless the situation is such that the private utilities just are not interested in building them?

Mr. AANDAHL. I do not think that we can make that as a general statement. I think we have transmission facilities that were built to transmit power which could have been handled by facilities which existed in the area, or extension of those facilities which local interests would have made.

But, as you know, during this period of development of hydroelectric power there has been quite a contest between public- and private-power groups, and there are many factors which are involved in the decisions which were made.

I might say that personally I feel that hydroelectric power which is generated in connection with these water-development facilities, and I am talking about the dams and the reservoirs which are created behind the dams, both for flood control and for irrigation and for other associated purposes, should be thought of as a helpful contribution in meeting the power requirements of the area, and that insofar as possible this Federal contribution should be associated and integrated with the utilities, both public and private, that happen to exist in the area.

We are trying to do that to the best of our ability in working out the program that we have before us.

The total amount of Federal-installed capacity in the United States at the present time is about 13 percent of the total installed capacity.

It is not hard to reach the conclusion that the primary responsibility nationwide for supplying power needs rest with the local people, and the Federal power is just a contribution that can be helpful in meeting the local needs.

You can take specific local areas where the relationship is quite different.

In the Tennessee Valley you have 100 percent Federal generation and transmission except for the energy used by the Atomic Energy Commission.

In the Bonneville area I think between 58 and 60 percent of the power is Federal generation.

In the Bonneville area the Federal generation is all hydroelectric. In the Tennessee Valley it is about half hydro and half steam, a little bit more steam than hydro.

Mr. MAGNUSON. You mentioned the percentage of Federal transmission in the TVA area, you mentioned only percentage of Federal generation in the Bonneville area. Can you give us percentage of Federal transmission?

Mr. AANDAHL. No; I cannot. I presume as far as transmission as contrasted to distribution is concerned that the transmission is probably just about in proportion to the generation. That is just an assumption on my part. I do not have specific information.

FEDERAL INTERAGENCY COMMITTEE

Mr. DAVIS. In the latter part of your statement you refer to a number of Government agencies which I think perhaps we ought to have identified.

You mentioned the Federal Interagency Committee. Who are they?

Mr. AANDAHL. The Federal Interagency Committee in the Missouri basin is a committee made up of representatives of the Federal Departments that have a major responsibility in connection with the water-development program.

They are the Department of the Army, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Federal Power Commission, and Health, Education, and Welfare, and Labor more recently have been added.

This Federal Interagency Committee has the 10 governors of the basin; perhaps I should call them, associate members.

General POTTER. They are now full members?

Mr. AANDAHL. Yes. Previously they were thought of as associate members.

It is their responsibility to review plans for development and by suggestion to inspire coordination.

Coordination itself is dependent on the voluntary response of each of the departments and agencies that have a responsibility. I have been tremendously well pleased through the years with the success that we have had in coordinating the work of the several Federal departments and the branches of the State government that have been interested in developing the program.

I think we have had an outstanding experience in the Missouri basin in coordinating the work.

Mr. DAVIS. It has actually been an effective policy-making group, then. It has not been in actual practice something that meets once a year and puts its stamp of approval on various programs by which we can get a little extra Federal money into the basin?

Mr. AANDAHL. When I was a member of the committee as governor, and I was a member of the committee for 5 years, we met about 9 times a year. There were nine States that were primarily interested. Minnesota didn't take too active an interest in the Interagency Committee. The other nine States were very actively interested, and the Interagency Commitee met once a year in each State, which was about one meeting a month.

Those were generally 2-day sessions, and a lot of time and attention was given all the way through to coordinating the work and getting a well-balanced and a well-rounded program.

RESERVOIR CONTROL CENTER

General POTTER. If I may add one statement there. You may have been coming to the last item which has to do with the reservoir control center, Mr. Davis.

Mr. DAVIS. I was.

General POTTER. It logically falls in with what the Secretary has said.

Three years ago we started in the formation of this reservoir control center, which is made up of the working members of the Federal agencies and the State engineers.

It meets twice a year at a minimum, looks at the forecasted water, works out a method of using that water during the year that is satisfactory to the States and to all of the Federal agencies. At a later meeting it looks at the water it has on the ground, from the snowfall

and runoff, and changes the plan to take care of the actual situation as it exists then, and then forecasts the operation for the next year on an average year basis, on a minimum, and on a maximum year basis, so it sets the pattern whereby the people who actually operate the reservoirs must live during the coming year.

I am very proud of that organization, sir. It is physically set up in my office but just as a place to meet.

Mr. DAVIS. What is the reservoir control center? Where is that?

General POTTER. In my office, sir.

Mr. DAVIS. Is that an agency, then, of the Corps of Engineers?

General POTTER. No, sir. It is an agency of the Interagency Committee. But we are the people who on the main stem must actually open the gates, and in the reservoir control center are various teletypes and mechanisms which enable us to coordinate the operation of all reservoirs.

STATE ENGINEER COMMITTEE

Mr. DAVIS. What is the relationship between the Federal agency and State engineer committee and the Federal Interagency Committee?

General POTTER. The State engineer is usually the man through whom the Governor works for the technical part of the program.

Mr. AANDAHL. Yes.

Mr. DAVIS. Then does the corps consider itself obligated to follow the recommendations of this Federal agency-State engineer committee? For instance, do they decide a certain volume of water should be released over Fort Peck over a given period of time? Is that what it does or is it an advisory group with the final responsibility resting on the corps?

General POTTER. Once agreement has been reached we are merely an operating agency.

Mr. DAVIS. The answer is, then, that that is a binding commitment?

General POTTER. Yes, sir.

FEDERAL INTERAGENCY COMMITTEE

Mr. DAVIS. Is this Federal interagency committee something which is set up under Federal law?

Mr. AANDAHL. No. It is a voluntary organization.

Mr. DAVIS. We come to the next question, then, as to why the Corps of Engineers, an agency directly recognized and created within the Federal Government, can delegate its responsibility for decisions of this kind to an agency not recognized under Federal law.

Mr. AANDAHL. Perhaps I can venture an answer, and then perhaps the general would like to offer one afterward.

Basically the responsibilities that are assigned to the Corps of Engineers remain with them, and they are responsible to operate their projects in a manner and for the purpose that they have been directed to operate them under the law.

In determining just exactly what should be done it is necessary for them to exchange ideas with the other groups that have associated water-development projects in the area and that have an interest in the use and the disposition of the benefits that come from those projects.

This advisory group which is set up, when it gets through with any particular responsibility that it has, has pretty well coordinated the purposes of the different groups and the different agencies, and the chances are its recommendation to the corps will be about the best answer to the problem that is before the corps in the area, and in responding to that recommendation they are probably doing the best thing they could do to comply with the requirements of law.

But basically they are the responsible agency.

General POTTER. And if I may carry on, sir; the primary responsibility is flood control. Nobody interferes with that.

The floods result in an amount of water, and just as you do with your personal income we budget that water for its various purposes on the advice of the people who have an interest in its use.

Mr. DAVIS. I think what you have said actually is that this is in fact an advisory committee, that the final decision and final responsibility continues to be with the Corps of Engineers. Is that it?

Mr. AANDAHL. And it continues to be with the other agencies for their particular responsibilities. That is correct.

But it constitutes an arrangement for voluntary coordination of a group of Federal departments and agencies which thus far has worked out remarkably well.

I might say that in the Missouri Basin it is our answer to an impending challenge of authority administration. When I say that I am speaking as a former Governor of North Dakota and as a resident of the area more than the Assistant Secretary of the Interior. We like this coordinated plan very much.

Mr. DAVIS. Certainly anything I have said is not in criticism of it. In fact we have discussed it several different times before and I have been very favorably impressed with the manner in which the State governments in this area have cooperated and have coordinated the efforts in this basin.

But I think we still get back to the original testimony that the Corps of Engineers considered themselves bound by recommendations that are made here by a group which has no standing in Federal law, as I understand it.

In other words, it would be no answer to the people or to Congress if something went haywire and the division engineer in Omaha came here and said "I didn't make this decision. It was made by this group of people."

We say, "What group of people? We never heard of them. Show us in the statutes where they get the authority to make this decision."

Mr. AANDAHL. I wouldn't think the corps ever would get into that position, because they have primary statutory responsibilities, and they are going to see that those are carried out. They can see that those are carried out and provide for the proper storage of floodwater. Then when that floodwater is being released for beneficial uses, as General Potter said, it can be budgeted on the basis of the recommendation that comes from the entire group.

The Missouri Basin Interagency Committee, and everything that it has done, has been based on the concept that each of these Federal departments that have had long experience in their respective fields, reclamation and irrigation, the Corps of Engineers in flood control and navigation, the Department of Agriculture in soil management,

and so on, have basic statutory responsibilities. It is a matter of bringing them together, coordinating their efforts, and so directing their efforts that the maximum benefit to the basin will result, but yet each being responsible for his particular and respective type of duty.

Mr. JOHNSON. We have worked out a great many problems in those meetings. I do not think in any case any agency has felt that they had to depart from what they thought was the right thing to do under their own statutory responsibility. It has been more a problem of working out jointly the best solution to the problem.

Mr. DAVIS. I think it is fine that these local people are consulted on it, but I think the overall record here makes it clear that that is what it is, consultative, and it cannot by way of direct authority supersede what the responsibility of the corps is in the area.

General POTTER. It works a great deal, sir, in the use of water like the Northwest Power Pool works on the generation and distribution of power in the Pacific Northwest.

Mr. DAVIS. Is that composed of representatives of the various States interested there, too?

General POTTER. The States, private power, public power, and municipal power, I believe.

PICK-SLOAN PLAN

Mr. DAVIS. Page 11 refers to policies established in Senate Document 247. Can you identify that a little better for the record?

What is the background of that document?

Mr. AANDAHL. Senate Document 247 is the document which coordinated the plan of the Corps of Engineers for development of the water resources of the Missouri Basin, and the plan of the Bureau of Reclamation.

Mr. DAVIS. Is that what we commonly refer to as the Pick-Sloan plan?

Mr. AANDAHL. Yes.

COST AND REPAYMENT OF IRRIGATION

Mr. DAVIS. In connection with these various irrigation projects, just taking Fort Peck as an example, we can now have so many acres irrigated with water from Fort Peck. We have allocated so much of the cost of Fort Peck for irrigation benefits. Mathematically, therefore, it is costing so much per acre to develop this land for irrigation.

Is it that simple?

Mr. AANDAHL. Well, that is at least the starting point. In each one of the reservoirs there is a certain portion of the storage space that is declared available for conservation storage, and a certain portion for flood control and navigation, and there is a certain portion that is dead storage.

For each of the projects the investment in the project, the cost of the project, is allocated to these different beneficial uses, and that is the amount which must be repaid as far as the cost of that project is concerned by the benefit so designated.

Similarly we can take each of the other large dams on the main stem and make similar allocations.

From the standpoint of power, there is a certain total allocation to power in this whole system of reservoirs, and the payout for that is figured on a basinwide basis and not each project by itself.

Similarly the investment in irrigation is figured on a basinwide basis.

We have what is called the basin accounting in the Missouri Basin in figuring repayment.

Mr. DAVIS. I have heard statements made that it was costing us huge amounts of money for every acre of irrigated land that we are reclaiming in the Missouri Basin. I have heard a figure tossed out that it was costing us $1,000 an acre.

Is there any basis for a statement of that kind that you know of?

Mr. AANDAHL. I am not sure what you mean by saying it is costing us those amounts. The schedule of revenues which was worked out and which was part of the 1953 report indicated a full repayment of all reimbursable investments.

The new repayment that we will work out in connection with the revised report that we expect to have out this fall will be so set up that it will show full repayment of the Federal investment in the so-called reimbursable features of the project. Flood control, navigation, and some other benefits are nonreimbursable. But the investment in power, the investment in irrigation, the investment in municipal and industrial water is reimbursable, and the repayment schedule for the basin will show repayment of those.

Irrigation will be repaid without interest. The other reimbursable costs will be repaid in 50 years or less with interest, and additional revenue from those sources, either during the 50-year period or following the 50-year period, will be used as an aid to pay out that portion of the investment in irrigation which cannot be paid by the water users.

As far as irrigation is concerned, if the studies are worked out correctly and the repayment schedules materialize as they are set up, the only contribution that the Federal Government will make to irrigation will be the interest on the money made available for irrigation development.

Mr. PHILLIPS. The question arises, to get continuity, in the application of this secondary formula, whether the amount of interest does not in some way equal the interest that we argued on the floor of the House under the terms of interest component, as to whether we have not approached the problem through another door and arriving at the same position which the Congress repeatedly refused when approached directly.

I am not able to answer that and I wonder if you can answer it?

Mr. AANDAHL. Insofar as a portion of the repayment for irrigation will have to extend beyond the 50-year repayment period, the answer to your question is "Yes."

The advantage, however, of setting it up under a Collbran arrangement, when that situation exists, is that you then have the revenues from these facilities dedicated to repayment to the Government over a longer period of time.

If you use the interest component to pay off irrigation, on your books you would have everything paid out at an earlier date, and after that date you might reduce the price of power one-half, or some

other percentage, and reduce the revenue that comes to the Government.

However, if you set it up on the Collbran basis, you have that revenue committed to the Government for a longer period, so I feel that the Collbran approach, when you go into repayment periods of greater than 50 years, is much better than using the interest component from the standpoint of the Government and from the standpoint of the broad interest of all of the people of the United States.

Mr. PHILLIPS. Is there not another factor involved, and that is the fact that as we exhaust the most economic projects, those which are the most easily considered to be feasible, we lengthen the time of repayment, we add in other factors for which the Government is willing to give a certain amount of money in order to make these projects feasible under the technical terms of the law, and is not the use of the Collbran formula as it has been proposed in some projects just another means of making possible construction projects which perhaps 20 years ago, or more than that, when the reclamation law was set up, would not have been considered properly economic for the Government to build?

Mr. AANDAHL. Yes; I think that is correct. We find in the analysis of reclamation projects currently under construction, and particularly those that are planned for the future, that the cost per acre of making the irrigation possible is just higher. The easier sites have been developed first and it is the more difficult sites which remain, and if we are going to have an irrigation program, an expanding irrigation program, we have that increased cost and extended payment involved.

Mr. PHILLIPS. The problem then becomes one which is very difficult, and that is where shall Congress draw the line?

Secretary AANDAHL. That is correct.

Mr. PHILLIPS. May we say as a matter of record, Mr. Chairman, and I presume we all know what we are talking about while people reading the record may not, the reason it is called the Collbran formula is because there was a small project at Collbran which had a formula applied to it amounting to about $2 million, and at the time it was questioned on the floor. It started as being merely a substitution in name or method to reach the same result which the Congress had refused in the interest component formula.

The statements were made at the time, one, that this was just a very small project amounting to very little, and, second, in the report we stated definitely that this was not to be considered a precedent for other projects.

I am not saying it is right or wrong, but I am now questioning the effects which may come from this.

Mr. RABAUT. Off the record.

(Discussion held off the record.)

Mr. DAVIS. I believe you told us, Mr. Secretary, that the accounting was done on a basinwide basis so that it would be practically impossible for us to attempt to compute the cost of a fixed number of reclaimed acres for any one project.

Secretary AANDAHL. I think when you come to an irrigation district our accounts will show the amount of the investment in the distribution system for that irrigation district, and its share or relationship to the total cost of its source of water.

I think that question could be answered quite definitely.

In the justifications on page 340 you find the Frenchman-Cambridge division, Nebraska. You will notice the Federal investment is $893 and the repayment is $125 from water users, and $768 from power revenue. Then there is a division of the annual water users charges showing $3.13 for construction, $2.30 for operation and maintenance, and a total of $5.43.

(Discussion held off the record.)

Secretary AANDAHL. In further answer to your question, this is just for the distribution system in the irrigation district, and in addition to that there is a water charge that will deal with, or will take into account the cost of the main canal and the storage reservoir.

Mr. RILEY. Off the record.

(Discussion off the record.)

Secretary AANDAHL. This type of an analysis will be shown for each of the units for which appropriations will be requested.

Mr. DAVIS. We can probably wait on that until we get the one specific project and try to clear it up. It is not at all clear to me at the present time.

In order to arrive at what we consider it is costing us to develop it, we will assume that the land is useless without the irrigation or practically useless. How do we go about finding what it is costing us to make productive acres in any particular area?

Going back to this one of Fort Peck, we will say that the water from Fort Peck is now being used to irrigate 1,000 acres of land. Without that water and irrigation service, the land is barren and dry and will not produce anything except a little cactus, we will say.

Now it will produce something, but how much are we investing in those 1,000 acres in order to get something?

First of all, you are going to have this distribution system that is mentioned here which probably runs into a considerable amount per acre.

In addition to that, we have got a pro rata share of the cost of Fort Peck itself, which is that portion which is chargeable to the irrigation.

Secretary AANDAHL. And the figures for the cost of the water can be worked out just as they have been worked out here for the distribution system.

You would take the total cost of the irrigation facilities, the portion of the reservoir allocated to irrigation and the main canals that get down to the distribution system, and divide that by the total number of acres that it is expected to be irrigated from that source of water, and that will be the cost per acre for the water, and add that to the distribution cost and you have the total cost for the development.

You will find that a sizable portion of the investment in the reservoir and in the main canal system will be paid by power revenues just as there is a sizable portion of the distribution cost being carried by the power revenues.

There are a few projects, and particularly earlier projects that were constructed at the more favorable sites quite a few years ago where water users are able to make a 100-percent repayment of all costs that are associated with the irrigation in the 50-year period.

But those projects are very limited in number.

Mr. DAVIS. May we go off the record, Mr. Chairman.

(Discussion off the record.)

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION PROJECTS ON BLUE AND SOUTH PLATTE RIVERS

Mr. RILEY. Mr. Secretary, you are requesting a total of $85,500 for General Investigations, of which $60,000 is for investigation on the Blue and South Platte Rivers.

Secretary AANDAHL. I do not have that reference here, Mr. Chairman.

Mr. RILEY. It is on pages BR–7 and BR–8. It is under the reclamation tab, GI.

Secretary AANDAHL. I will ask Mr. Walters, the regional director at Denver to respond to that question.

Mr. RILEY. Is this project related in any way to the Chatfield Reservoir which is under study by the Corps of Engineers on the South Platte River?

Mr. WALTERS. Yes, sir; I believe so.

To make it clear, there are really two Blue—South Platte Rivers which have plans and the city of Denver plan which I do not believe involves Chatfield.

We had proposed a plan in 1947 for diversion of water which is called the Blue-South Platte diversion plan and we had asked the Corps of Engineers to allocate, I believe, 90,000 acre-feet of reservoir space out of their flood-control space to be replaced in our Two Forks Reservoir upstream. That is the connection.

Mr. RILEY. Has proper consideration been given in the planning funds for this project that water will be available to the eastern part down there, toward the city of Denver? The Platte River hooks down in that direction.

Do you know whether or not that is true?

Mr. WALTERS. The water is physically available to divert, but the plan has not been accepted by the State of Colorado, which is pending on the Denver diversion for acceptance of the Bureau's Blue-South Platte plan.

Mr. RILEY. Is this the same river from which Colorado Springs proposes to get some 5 or 6 million gallons of water a day?

Mr. WALTERS. Colorado Springs has an interest in the same general area, which would be part of the Blue diversion scheme.

They also have made application for water through the Frying Pan-Arkansas.

Mr. RILEY. Is this study to try to get information as to the feasibility of all these projects you mentioned and to see whether or not there is other water to apportion out to the various demands that are in prospect?

Mr. WALTERS. That is right, sir.

Mr. RILEY. Therefore, no conclusion has been made on it. This is just a further study to determine whether or not these projects are feasible and whether or not you can supply the various demands made on this project; is that right?

Mr. WALTERS. The project has been very thoroughly investigated, but the decision as to which plan to use has not been determined and that money is to help to determine which plan will be used.

Mr. RILEY. Do I understand then that you have some alternate proposals?

Mr. WALTERS. That is correct, and that will depend upon the allocation of the water made by the State of Colorado.

Mr. RILEY. Thank you very much.

Off the record.

(Discussion off the record.)

Mr. RILEY. Mr. Magnuson has a question which he wants to ask.

DETERMINATION OF FIRM POWER

Mr. MAGNUSON. One point which I think is obvious but which I think it might be well to get into the record with respect to the discussion we had this forenoon is the thing I would like to discuss now and that is about choosing the basis on which the amount of firm power is computed.

If you took the absolute minimum water year as the base for estimating the amount of firm power which would be available and sold everything above that as secondary interruptible or dump power, is it not true that you would have substantially adverse effects on your income inasmuch as the secondary power and dump power sells at a lower rate than the firm power?

Secretary AANDAHL. I think, generally speaking, it is reasonable to come to that conclusion.

There is another approach that can be given and that is this: The Federal resource is the same and has the same potential value to the community irrespective of who is responsible for the integration.

If the Bureau of Reclamation buys steam power to firm up additional power, then the Government has taken the integration responsibility.

The other approach that could be used is that the Government could sell the actual amount of hydro firm power that would be available to customers at their established load factor and the remaining power that would be available for sale would be the peaking capacity of the plant, which would have a pretty good market value, in addition to the types of secondary energy that might be associated with it. It would be possible to sell that peaking capacity to some local entity and have the local entity have the responsibility to firm it. Under such arrangement there would be lesser amounts of power available to customers in direct sales at their available load factor and on an around-the-clock basis.

I am not sure if there is too much difference in the total revenue that might be available to the Government as between the two approaches that might be used.

Mr. MAGNUSON. With respect to its history to date, do you feel it has been economically advantageous to be not quite so conservative in estimating the firm power and thus risk having to purchase steam power elsewhere on occasion to firm it up?

Secretary AANDAHL. I would say that there is no question but that the arrangement that has been used up to the present time is fully as advantageous to the Government as the other possibility I have mentioned.

I am not discrediting it at all as a revenue-producing approach. I am merely suggesting that there is another way that might accomplish substantially the same result.

Mr. MAGNUSON. With respect to Federal construction of transmission lines, I want to get your position clarified.

I would judge from what you said on that subject a while ago that you feel that Federal construction and operation of transmission lines has been and is justified and necessary.

Secretary AANDAHL. There are places where Federal construction of transmission lines, particularly interconnecting, closely associated hydro plants, that is desirable and there are also instances where the Federal construction of a line out to a load center is advisable.

Mr. MAGNUSON. Is it your belief that the Federal Government has built too many transmission lines?

Secretary AANDAHL. Yes, I think the Government has built some lines that could just as well have not been built by the Federal Government.

Mr. MAGNUSON. Do you have any specific examples?

Secretary AANDAHL. I might say that I also think there are some lines that could advisedly have been built that have not been built yet.

Mr. MAGNUSON. It is a matter of judgment?

Secretary AANDAHL. Yes,, and I do not mean to be particularly critical of what has been done because by hindsight you can oftentimes have a little different perspective than you would have earlier.

Mr. MAGNUSON. Is it not true, Mr. Secretary, that the Federal entry into this field of transmission has resulted in making electrical power available to areas, particularly rural areas, granting that they do not do the actual completion but only get it to load centers, and so forth, which would not otherwise perhaps even now have electricity?

Secretary AANDAHL. No, I think that power would have been available for the rural electrification movement either with or without Federal production of wholesale power, and there are many areas in the United States where the cooperatives are dependent upon sources others than the Federal Government for their power.

I believe the cooperatives purchase about 49 percent of their power from private utilities throughout the United States, and about 29 percent from the Federal Government.

I do feel that the Federal power that has been available has been a helpful contribution and has tended to be available at a lower price than other sources of power.

The fact that the Federal Government has a tax-exempt power production machine and the fact that the Federal interest rate is lower than is available in the otherwise open market has meant that Federal power is available at a somewhat lower rate than it can be produced by private or local organizations.

However, the tax-exempt feature is a price that is being paid by all the people of the United States, and when you come to calculate the price of Federal power you must take into consideration not only the price that the specific consumer is paying for it and the specific distributor is paying for it, but you must also take into account the tax contribution that is made by the people of the country as a whole.

Mr. MAGNUSON. In the first place, is it correct to say that this operation is completely tax exempt?

Secretary AANDAHL. Your Federal plant and Federal transmission system is tax exempt.

Mr. MAGNUSON. Is there not a factor in lieu of tax?

Secretary AANDAHL. Some limited factor in lieu of taxes, but a very, very limited factor.

The substantial offset to that is the aid to irrigation that comes out of power revenue.

Mr. MAGNUSON. From the standpoint of the Federal Government, which is also the American taxpayer, is there not an offset in the industrial and commercial activity which is generated by the Federal power and which in turn produces taxes in enormous amounts?

Secretary AANDAHL. I am inclined to think that most of those industrial developments would have come someplace in the United States without the Federal power.

If we need the products of the industry, the industry would develop, probably at a different location, but if the industry is needed for the American economy, it would develop someplace or other.

Mr. MAGNUSON. Do you think it would develop as fast and that the Federal Treasury would be drawing equal taxes whether the Federal power was there or not, that is, in the indirect benefits of people who pay taxes and industrial employment and the factories that would go up and which would pay taxes?

Secretary AANDAHL. I think so. Of course, that gets to the basic differences of opinion between Government ownership and private enterprise, and I have repeatedly said—and I am a very strong supporter of private enterprise.

I recognize that public power can properly come as a byproduct of these water-development programs and a certain amount is justified by this reason, but outside of that, I am not a Federal power supporter.

Mr. MAGNUSON. Getting back to the original question about Federal transmission lines, isn't it true that private utilities generally, or at least in many instances, were reluctant, either for fear of economic loss or because they thought that the amount of business just did not justify it, or because they wanted to get excessive returns, were reluctant to extend their lines into areas which have since come to be served as a result of Federal transmission, and that those private utilities, by and large, have more or less been forced to construct lines which they otherwise would not have constructed except for the presence of the Federal competition?

Secretary AANDAHL. Well, our national experience right now is that the two Federal Power Commission districts that have the lowest reserve of power are the districts in which we have had the greatest Federal activity, and that is the Pacific Northwest and the Tennessee Valley.

Now, I recognize that that low reserve in those areas is not solely the result of Federal activity, and I recognize that the Federal power in the area which is relatively low-cost power has stimulated a lot of industry to come to the area and has built up the load there and that the increased load that has come in those areas is perhaps more of a reason or is perhaps the basic reason for the low reserve in the area. There are other areas where there have been sizable industrial developments, and private industry in the electrical power field has built fast enough to supply the power that is needed for those other

industrial loads and have kept ahead of the game with a greater percentage of reserve than in the Federal areas.

I have no lack of confidence in the private utility field to meet the power requirements of the country.

They have been hesitant to move further in these areas where we have had so much Federal power because there has been concern that they would be pushed out, fear that a Federal monopoly would be completed and they would be pushed out, and they held back.

That is another reason for the power shortage in those particular regions.

Mr. MAGNUSON. Mr. Secretary, having stated your support of private enterprise, I suppose you make it necessary for me to say that I also favor private enterprise and believe in private enterprise. However, is it not true that there are many of these huge multipurpose dams that are quite probably beyond the financial capacity of private utilities?

Secretary AANDAHL. Oh, yes; and that is what I said several times today. There is hydroelectric power in connection with the water-development program that is the proper function of the Federal Government and I am very glad to support that kind of development and feel that that amount of Federal power can be helpful and a valuable contribution to meeting the power needs of an area and that we should be willing to do it where local entities of one kind or another are not able to do it.

AMOUNT OF FEDERAL POWER GENERATED

Mr. MARNUSON. I believe you said that about 13 percent of the power generated in the United States is Federal power?

Secretary AANDAHL. Yes.

Mr. MAGNUSON. And in the public-power category that would be municipal systems?

Secretary AANDAHL. Yes; but I don't know what that percentage is.

Mr. MAGNUSON. We still do have a vast preponderance of so-called private power as against public power.

Secretary AANDAHL. That is correct.

YELLOWTAIL DAM

Mr. MAGNUSON. Mr. Chairman, I notice it is 4 o'clock, but I did want to ask the Secretary a couple more questions about Yellowtail.

Mr. RILEY. Will it suit you to proceed for a few minutes?

Secretary AANDAHL. I will be glad to stay as long as the committee wishes to work.

Mr. RILEY. It may be we will not have to ask you to come back tomorrow.

Secretary AANDAHL. I appreciate that, although I welcome the opportunity of coming before the committee.

Mr. MAGNUSON. How far along are your explorations with Montana Power and City Power with respect to a partnership at Yellowtail?

Secretary AANDAHL. About the only thing that has been done so far is to indicate to the companies that we would be interested in an offer from them on a partnership proposal.

We have not received any offers and we do not know what it might amount to.

I might say that in a partnership proposal of that kind we would expect the revenue from the lease of falling water to be adequate to repay the Federal Government for its investment in the joint facilities, with interest, over the 50-year period, and also to be sufficient to give substantially the same aid to irrigation that we could get if we had the powerplant and were selling the power ourselves.

But we have not had an offer of any kind, to say nothing about being able to measure it.

In the case of the Trinity project in California, we have had a specific offer from the Pacific Gas & Electric Co.

Mr. MAGNUSON. Would the Federal Government retain title to the dam in perpetuity?

Secretary AANDAHL. Oh, yes. In the type of a proposal we had before us in the Trinity project in California, and in the type of the proposal we might expect in the case of Yellowtail, the dam would be built and owned in perpetuity by the Federal Government.

The falling water would be sold or leased and the non-Federal entity would build the powerplant.

Mr. MAGNUSON. I take it that the Interior Department initiated this proposal.

Was it with the idea that both of these private utilities would be copartners, or is it open as to one of them making an offer?

Secretary AANDAHL. In all of our partnership proposals, we have kept in the position where we can recognize and consider any proposal made by a non-Federal group.

It might be made by a private utility or a group of private utilities.

It may be made by a public-power group in the local area.

Out in your area, for instance, it could be the city of Seattle, the city of Takoma, or any of the local power groups.

The only thing we are interested in in the partnership development is to have an entity other than the Federal Government make a proposal to aid in power development.

Mr. MAGNUSON. Is there sort of a tacit understanding in the Department that if there is a Yellowtail project it will be a partnership project?

Secretary AANDAHL. We have made no policy decision on Yellowtail. We have encouraged partnership offers, but we have given no indication of what we could do and we could not do that until we have had that offer and time to see what we had to work from.

Mr. MAGNUSON. That is all, Mr. Chairman.

Mr. RILEY. Are there any further questions?

Mr. Secretary, the committee is very grateful to you for a frank, forthright, and informative statement

We could not have asked for better cooperation.

Secretary AANDAHL. I appreciate the opportunity of appearing before the committee, and if there are any further questions that come, I will be glad to come back at a later time and exchange ideas.

Mr. RILEY. Thank you.

TUESDAY, APRIL 26, 1955.

CONSTRUCTION AND REHABILITATION, BUREAU OF RECLAMATION

COLORADO-BIG THOMPSON PROJECT

Mr. RILEY. We will start this morning with individual projects for which construction funds are requested. The first project to be considered is the Colorado-Big Thompson project, in the State of Colorado.

Without objection we will insert pages 155 through 157 and a statement on the project changes from original estimate to date.

(The matter referred to follows:)

COLORADO-BIG THOMPSON PROJECT, COLORADO

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$159,692,279
Total obligations to June 30, 1954		154,683,637
Allotment, fiscal year 1955	$1,130,000	
Prior year balance available	120,000	
Total obligations, fiscal year 1955		1,250,000
Allotments, fiscal year 1956	$2,100,000	
Total obligations, fiscal year 1956		2,100,000
Balance to complete		1,658,642

WORK PROPOSED, FISCAL YEAR 1956

Storage facilities.—Facilities completed, no fiscal year 1956 program.

Carriage facilities.—Facilities completed, no fiscal year 1956 program.

Transmission facilities.—Facilities completed, no fiscal year 1956 program.

Green Mountain Dam, powerplant, and switchyard ($31,664).—This amount will be used for final payment on the transformer and contract costs of installation.

Willow Creek feeder canal system ($40,000).—This amount will be used to correct erosion along the canal.

Estes aqueduct, power system, and Olympus Dam ($39,000).—This amount is required to make payments on equipment for the Estes Park substation addition and contract payments for installation.

Estes Park-Foothills power system ($140,000).—This amount is required for construction of the Valmont Bay of Flatiron switchyard. Metering equipment will be ordered for the Valmont Bay of Flatiron switchyard upon competion of negotiations with the Public Service Co. of Colorado for interconnection between Flatiron switchyard and the public service system at the Valmont steamplant.

Big Thompson powerplant, switchyard, and transmission line.—Work on this feature has been deferred.

Boulder Creek supply canal.—No work is scheduled for this feature during fiscal year 1956.

South Platte supply canal ($1,244,129).—This amount will be used to continue construction and pay contract earnings for completion of the canal for delivery of water in 1956.

Project substations, multiple line use.—No work is scheduled on features included in this item in fiscal year 1956.

Green Mountain-Dillon 115-kilovolt transmission line and substation.—No work is scheduled for this feature during fiscal year 1956.

Green Mountain-Oak Creek 115-kilovolt transmision and substation ($68,000).—These funds are required for payment for equipment and installation in the Oak Creek substation to serve additional load requirements of the Yampa Valley area including the new Craig metering station to serve the White River REA.

Estes-Granby pumping plant-Green Mountain 69-kilovolt transmission lines and substations ($80,000).—These funds are required to award a contract for increase of the transformer capacity of Granby substation from 600 kilovolt-amperes to 5,000 kilovolt-amperes and to pay for the 5,000 kilovolt-amperes transformer and associated equipment.

Flatiron-Greeley-Beaver Creek-Sterling 115-kilovolt transmission lines and substations ($144,000).—These funds are required to complete procurement of the 6,000-kilovolt-amperes transformer bank and to contract for installation of the transformer bank and associated equipment for Fort Morgan substation additions.

Flatiron-Fort Collins-Cheyenne Tap 115-kilovolt transmission line and substations.—No work is scheduled for this feature during fiscal year 1956.

Permanent improvements ($300,000).—No work is scheduled for this feature during fiscal year 1956. The $300,000 represents a transfer of service facility equipment to general plant for operation and maintenance use.

Date of planning	1935
Date of advance planning	1937
Date of authorization	1937

The Colorado-Big Thompson project was found feasible by the Secretary on December 20, 1937, under the provisions of section 4 of the act of June 25, 1910 (36 Stat. 836), and subsection B of section 4 of the act of December 5, 1924 (43 Stat. 702), and was approved by the President on December 21, 1937. The Interior Department Appropriation Act, 1938 (50 Stat. 564, 595), appropriated the sum of $900,000 for the Colorado-Big Thompson project for construction in accordance with the plan described in Senate Document 80, 75th Congress.

Original cost estimate	$43,883,000
Date of reauthorization	None
Present cost estimate	159,461,000
Date construction started	1937
Estimated completion date	1959

Remarks.—The matter of increased cost of construction of the Colorado-Big Thompson project was explored thoroughly with the Appropriations Committees of the House and Senate at various times during the construction of the project. Of the approximate $115 million increase, about $55 million was caused by increases in the general price level and in the unit cost of labor and materials, and about $33 million resulted from improvements and changes in the project plan. The approximate $27 million balance of the increase was due to inadequate cost estimates, unforeseen conditions, and expedited construction of power facilities for possible wartime use.

Mr. RILEY. I note here that the estimated total obligations are $159,692,279, and of that amount $154,683,637 is obligated. Your total obligations in fiscal year 1956 are $2,100,000, so you need $1,658,642 to complete the project.

Mr. NEILSEN. Mr. Walter will respond to questions on the Big Thompson project.

Mr. RILEY. Has there been any particular difficulty in negotiating with the Public Service Co. of Colorado on the interconnection between the Flatiron switchyard and the Valmont steam plant?

Mr. WALTER. There has been; yes.

Mr. RILEY. What is the status of that now?

Mr. WALTER. About 2 years ago it was agreed that the interconnection between the two generating plants would be necessary, the Valmont plant being the Public Service Co. of Colorado, and the Flatiron generating plant of the Bureau.

Questions arose as to who should build the transmission line. It is agreed now that the Colorado Public Service Co. will build the line, and I understand they have an item in their budget to proceed.

Mr. RILEY. Will that delay the use of this power?

Mr. WALTER. No, sir; not for at least 2 years.

Mr. RILEY. You think it can be completed in 2 years?

Mr. WALTER. Yes, sir.

Mr. RILEY. There seems to have been an increase in the transformer capacity at Granby substation. Was that in the original plan?

Mr. WALTER. No, sir. These increases in capacity are due to increased load demand at that substation and other substations on the system.

Mr. RILEY. Do I understand you to mean by that that the demand for power is greater than you anticipated?

Mr. WALTER. That is right, sir.

POWERPLANT

Mr. RILEY. What have been your findings with regard to the feasibility of the Big Thompson powerplant? Is that considered feasible or not?

Mr. WALTER. The Big Thompson powerplant was conceived as a seasonal plant and it is not really essential for the system. It would be a good plant, I believe, for some future demand for power resulting from seasonal requirements.

Mr. RILEY. Do I understand by that that the firm power, so-called, would be limited?

Mr. WALTER. That is right.

Mr. RILEY. It would be only seasonal power, then?

Mr. WALTER. Yes, sir.

Mr. RILEY. How long would it take should it be found advisable to construct that plant?

Mr. WALTER. It would take about two and a half years.

Mr. RILEY. Is there any demand for seasonal power in that area?

Mr. WALTER. Yes, there has been an increased demand for pumping power on the system, especially in the area of Fort Morgan, which is downstream.

Mr. RILEY. That pumping power is used largely to pump water for the irrigation systems?

Mr. WALTER. That is right.

Mr. RILEY. Would this power be available, then, during the season that you have to irrigate?

Mr. WALTER. That would be the only time it would be available.

Mr. DAVIS. Inasmuch as this is the first of the projects of this kind in the hearings, I think it would be helpful to me if we could make this some kind of a primer for all projects of this kind which I certainly feel the need of, never having dealt with reclamation projects as such in this committee before.

Taking this particular project, for instance, started back in 1938, what was the estimated cost at that time? I refer to the Colorado-Big Thompson project.

Mr. CROSTHWAIT. The original estimates and present estimated costs are shown on page BR–154.

CHANGE IN PROJECT PLANS

Mr. DAVIS. Has the scope of this project been changed since that original estimate?

Mr. WALTER. Yes; I believe it has. The original proposal, as I get it, was that it was to be simply a diversion of an amount of water required for supplemental irrigation of eastern Colorado. This is one of those transmountain diversion schemes. It required lifting of water on the west slope, transmitting the water through a tunnel to the eastern slope, with just a sufficient amount of power to generate on the east slope to offset the power required for pumping on the west slope.

Mr. NEILSEN. The plan of the project changed materially as we got into it. Most particularly we moved a considerable amount of water south from the Big Thompson River into the Boulder area which brought in some construction which was not contemplated in the original plan, and I think that our transmission facilities grew beyond those which were originally anticipated as well.

Mr. DAVIS. At any time since then did you come back before the legislative committees of Congress in order to explain this greatly increased scope of the project?

Mr. NEILSEN. I am sure it was explained a good many times. It is unfortunate that Colorado-Big Thompson came up first, because that is the one we have had to explain time and again regarding increased costs.

Mr. DAVIS. But more than just explaining, you probably had to explain increased costs to the Appropriations Committee year after year, at least I would hope so. What about the authorizing committees? Were you required to give revisions of your authorizations at any time?

Mr. NEILSEN. I believe the plan as authorized was sufficiently flexible and the authorization given the Secretary sufficiently flexible so that I would judge, without knowing for certain, that the legislative committees were not told of the changes in plan.

Mr. PHILLIPS. Were not?

Mr. NEILSEN. Were not. I would judge that. I cannot be certain of that.

Mr. DAVIS. What is your policy in the Department at the present time where you find you are going to be getting in a whole lot deeper than originally was contemplated at the time of the presentation? Is this authority so flexible that you can, for instance, go ahead with the project knowing that it will run from three to four times what was originally contemplated?

Mr. NEILSEN. I would not think we were doing our job appropriately if we failed to tell the Congress of material changes of that kind.

Mr. DAVIS. When you say "tell the Congress," you mean go back to the Public Works Committee?

Mr. NEILSEN. At least go to the chairman and get his advice on whether the committee as a whole should hear the story or whether he thought we were entirely within our authorization to proceed.

Mr. DAVIS. At the time this was originally contemplated was power part of the project?

Mr. NEILSEN. Yes.

Mr. DAVIS. It always was considered part of the project?

Mr. NEILSEN. Yes.

PAYMENT OF INTEREST

Mr. DAVIS. As I understand it, there is a difference in the basic law to the effect that you are required to compute interest as far as power investments are concerned, but you are not required to do so with respect to irrigation. Is that correct?

Mr. NEILSEN. Yes.

Mr. DAVIS. Has that always been the law with respect to irrigation returns?

Mr. NEILSEN. Yes.

Mr. DAVIS. No interest computed?

Mr. NEILSEN. That is right. The law of 1902 provided that interest is not charged on irrigation facilities.

REPAYMENT CONTRACTS

Mr. DAVIS. I notice these repayments are scattered over a very long period of time. That appears to be true with respect to both power and irrigation. Irrigation apparently runs over 47 years; 50 years is your original normal period of repayment on irrigation?

On power that appears to run for a considerably longer time. What is the explanation of that?

Mr. NEILSEN. Well, on power we are required to repay the cost of the investment within 50 years at 3 percent interest beginning at the time the investment is made.

Not all of the investments are made in power overnight, of course. Plants come in one at a time and units come in one at a time. That accounts for the extent of the repayment period for power.

It appears to be over 50 years when actually we are repaying each unit out in 50 years.

Mr. DAVIS. This apparently is a period of 98 years on the power. Does that explanation you gave apply there?

Mr. NEILSEN. That is our general rule and if you will give me the page I will try to orient myself.

Mr. DAVIS. BR–152.

Mr. NEILSEN. To me that would imply that the last power unit would come in in 1991.

Is that correct, Mr. Walter?

Mr. CROSTHWAIT. That relates to the generators being installed at the present time. They will not be repaid until the 50 years required to repay them. The initial ones would be repaid 50 years from the time they were installed and the later ones from the time they were installed, and the period of years shown there relates to the time element in the installation of the power facilities.

Mr. DAVIS. Does that mean that some of these power installations are not going to be put in until 1991?

Mr. NEILSEN. That is the error.

Mr. CROSTHWAIT. They would be paid out in 2041.

Mr. NEILSEN. I am not aware any units are going into Big Thompson as late as 1991.

Mr. CROSTHWAIT. No.

Mr. NEILSEN. I think that must be a typographical error.

Mr. DAVIS. In other words, your statement did not answer that?

Mr. CROSTHWAIT. I think it is a typographical error. The note is correct that the project construction cost allocated to commercial power will be repaid with interest within 50 years from the date the individual facility becomes revenue producing.

Mr. DAVIS. When is it anticipated that the last power unit here will become revenue producing?

Mr. WALTER. The Colorado Big Thompson plant is the last plant.

Mr. DAVIS. When will that be completed?

Mr. NEILSEN. We have it scheduled for 1959.

Mr. DAVIS. Scheduled for 1959?

Mr. WALTER. Yes.

Mr. DAVIS. Then in order to conform with the law that last figure should be 2009, then. Is that correct?

Mr. NEILSEN. I have just had an explanation of it. The year 2041 is the final year in which power completes payment of that part of the cost of the project allocated to irrigation but assigned to power for repayment.

Mr. DAVIS. What is the significance of the figure 1997, then? That is to repay their portion of the irrigation costs by that year?

Mr. NEILSEN. Yes. That is when the water users finish paying their costs. That is the $29 million figure you see below.

Mr. DAVIS. Then the 50-year period figure for repayment of irrigation costs by power units is not applicable?

Mr. RILEY. Apparently this is another one of those projects where 50 years is used to amortize the power, and then they start on the second 50 years to amortize some of the irrigation costs.

Mr. DAVIS. I am trying to get that clarified.

Mr. NEILSEN. That is the situation.

USE OF POWER REVENUES TO REPAY IRRIGATION COSTS

Mr. DAVIS. Explain to me this general policy of repaying irrigation costs from power revenues. What is the basis for charging irrigation costs against the power revenues?

Mr. NEILSEN. Of course that is a policy which evolved beginning way back on the Salt River project in about 1912. The idea of using power to assist in repayment of those irrigation costs which the irrigators cannot repay came up at that time. I don't know how I can sum up all the thinking which has gone into that policy. It has been a policy which has gone on for these many years.

Essentially we create a power potential when we store water. Sometimes it is an economic power potential and sometimes it is not.

When it is economical we develop that power and proceed to sell it at a rate which will aid the economy of the service area, and as we will assess the power users through their power rates for assistance in the irrigation development. In other words, it is a multipurpose development.

Mr. DAVIS. Who decides that the irrigation cannot repay it? I believe that was the term you used.

Mr. NEILSEN. We do our best to determine the repayment ability of the irrigators and then report the results of our studies to the Congress, and the Congress either authorizes the project as we present it or it does not authorize it.

Mr. DAVIS. Then you make a finding as to what part of the actual irrigation costs the irrigators can pay?

Mr. NEILSEN. That is right.

Mr. DAVIS. What kind of criteria do you use for that?

Mr. NEILSEN. Well, it is a very long procedure. First we go to land classification to determine the capability of land under sustained irrigation operation. The results of that irrigation operation in terms of crop return are judged, the farm budget are judged in terms of a family on the farm getting a reasonable living, plus some degree of incentive to go into the enterprise.

Out of all those things comes our estimates as to the payment capacity of the individual farm.

All the time we are doing that, of course, we are consulting with the local people and they usually have considerable to say in the final analysis as to whether they think our result is correct through their congressional representatives.

Mr. DAVIS. Of course all the pressure on that score will be to keep it down. Anything the Government says will be too much if you look at it purely from that point of view, I suppose.

Mr. NEILSEN. No; I do not believe you can say we have had that experience. We have had cases of it, of course.

Mr. DAVIS. Then once you have made your finding on that score, as to how much you can expect by way of repayment on irrigation, you make a finding that the balance of the repayment is to be made up from power revenues, where power is part of the project?

Mr. NEILSEN. Actually we determine whether a reasonable power rate would result out of the necessary help to irrigation. If it will not we just don't have the project.

Of course we have a good many projects without power associated as well.

COST-BENEFIT RATIO

Mr. DAVIS. Do you make a determination of benefit-cost ratios on the same basis as the Corps of Engineers determine such a ratio?

Mr. NEILSEN. Yes.

Mr. DAVIS. What is your figure with respect to this project originally and as of the present time?

Mr. NEILSEN. I am not certain that that shows in these documents. As a matter of fact, in 1936 and 1938 when we were reporting on the Big Thompson we were not reporting a benefit-cost ratio. We later got into that procedure at the instance, I think, of the Bureau of the Budget, so we might be comparable in our presentation with the Corps of Engineers. Our law does not require that we come up with a benefit-cost ratio, as a matter of fact.

Mr. DAVIS. If you do not have something similar to that on what basis do you make a finding of economic feasibility?

Mr. NEILSEN. That is rather easy for me because I have always felt that in the end analysis the real determination of feasibility is whether Uncle Sam can get his money back out of it, regardless of all the procedures of economics we go through to arrive at a benefit-cost ratio.

If the United States can recoup its investment I think we have a feasible project.

Mr. Phillips will remember we had no benefit-cost ratio for the Boulder Canyon project but we are getting our money out of it.

Mr. DAVIS. I thought that was the thing a benefit-cost ratio was designed to do, to find out whether we would get our money out of it. At least it is to balance the economic benefit against the cost.

Mr. NEILSEN. That is right. In our area of operation it would justify the nonreimbursables and would justify the forgiving of interest on the irrigation debt.

Mr. CROSTHWAIT. All of our present projects do have a benefit-cost ratio included in them. These older projects do not have it, but all of our current ones are being computed to show a benefit-cost ratio.

Mr. NEILSEN. We have been reporting since about 1944 or 1945 on the benefit-cost ratio, I believe.

Mr. CROSTHWAIT. That is correct.

STATUS OF COLORADO-BIG THOMPSON PROJECT

Mr. DAVIS. For the record now, what has been completed and what are you doing right now on this project?

Mr. WALTER. The project is essentially completed so far as physical work. The work remaining to be done is the South Platte supply canal. That will complete the delivery system for the project. It should be complete by the end of the 1956 fiscal year.

Mr. DAVIS. That is what you are doing with the money you got in this current fiscal year?

Mr. CROSTHWAIT. That is what we have asked for in 1956. This will be completed with money we are using in fiscal 1955 plus what we are asking for in fiscal 1956. I refer now to the South Platte supply canal project.

Mr. DAVIS. What do you have yet remaining to do with the balance of something like $1\frac{1}{2}$ million?

Mr. WALTER. That is the Big Thompson powerplant.

Mr. DAVIS. Balance of $1,658,000-plus to complete after the fiscal year 1956?

Mr. WALTER. That is correct; that is the Colorado-Big Thompson powerplant.

Mr. RILEY. If the Big Thompson powerplant is not built, then you can complete this project in 1956; can you not?

Mr. WALTER. That is correct, sir. There would be minor additions to bring the system up to capacity.

Mr. NEILSEN. We always have this problem: The transmission system is not a static thing. It has to grow with the community and with the loads, so that until our system is completely accommodated to that energy which we have for sale, we will always be having some minor additions in that system.

Mr. RILEY. That happens in all projects; doesn't it?

Mr. NEILSEN. That is right.

Mr. RILEY. To all intents and purposes you can finish this during the next fiscal year, leaving out the Big Thompson?

Mr. NEILSEN. That is correct.

REPAYMENT ON IRRIGATION FACILITIES

Mr. DAVIS. Do you now have a consistent formula for your repayment programs on these irrigation projects?

Mr. NEILSEN. I am not sure that I get your question, sir.

Mr. DAVIS. Well, as we go from project to project we have great variations as to the period of repayment.

Mr. NEILSEN. Yes, sir.

Mr. DAVIS. Originally we start out with a 50-year repayment program and then apparently we extend them from time to time because someone decides that they cannot repay within the 50 years.

Mr. NEILSEN. I would qualify that last comment. It is not because someone decides he cannot repay but it is only after we have decided in our own minds that we have a project which cannot meet that cost, and we try to have endorsed in Congress a supplemental-repayment contract.

But if you are thinking of the variation in repayment periods through the country, our basic legislation states, I believe, in terms of 40 years plus a 10-year repayment period for the normal irrigation project.

Generally speaking, we are out of that kind of project.

In other places in the bill there is expressed what is to me an invitation to bring to Congress those projects which will not meet those criteria and let Congress deal with them as it will. We bring those in.

If Congress authorizes them under terms that we can work out, then we seek appropriations for them and build them, so that we have no set formula except first, and always, to try and see whether we can get a project which will repay in 40 years plus a development period not to exceed 10 years.

Mr. DAVIS. You say you bring them in and let Congress decide. Certainly you must recommend that they be authorized when you bring them before the committee; do you not?

Mr. NEILSEN. Yes. We bring in a recommendation in terms of—this is the payout possibility, the years of pay out required. On the basis of the benefit-cost ratio that we now compute we suggest that there is an economic gain to the country at large to be developed out of the project, and we base our recommendation upon that.

Again, in my thinking, if we can get the repayment out of a project within the useful life of that project, I think it is economically justified.

Mr. DAVIS. If you were including all of your costs I think I would agree with you, but I cannot follow that kind of a statement when you are not even thinking about paying the interest back. Over a period of 50 to 100 years this can mean 2 to 3 times the original cost, depending on what the current interest rates might be.

Mr. NEILSEN. In the development of our benefit-cost ratio we do take into account the interest costs to the United States of financing that irrigation venture. That is where the benefit-cost ratio is of value to us, in that it justifies the forgiving of that interest charge.

Repayment is one thing. That is collecting money from the irrigators to repay capital cost without interest.

The economic evaluation which goes into the benefit-cost ratio analysis determines all the costs which enter into the enterprise, including the interest which is outstanding on the unpaid capital investment.

Mr. DAVIS. When did you start using something comparable to a benefit-cost ratio?

Mr. NEILSEN. In about 1944 or 1945.

Mr. DAVIS. Do we have some projects in this year's budget which were initiated subsequent to that year?

Mr. NEILSEN. Oh, yes. Senate bill 191 comes up with an overall benefit-cost ratio, and most of the projects you will get into in the Missouri River Basin come within Senate Document 191, which is the basic authorization for the Missouri Basin project.

Colorado-Big Thompson was authorized before the Missouri Basin project.

ACCURACY OF POWER ESTIMATES

Mr. PHILLIPS. Mr. Chairman, may I go back with the general for just one question which I did not have time to cover yesterday? Let me borrow that chart again that I had yesterday.

I am still not quite satisfied, General, about the depletion estimates as these storage reservoirs, both small and large, are built. Here on this chart which I have, and with which you are familiar, it gets down there in a few years to something like 2½ billion kilowatts.

General POTTER. Yes.

Mr. PHILLIPS. It gets down there to about 2½ to 3 billion kilowatts. Turning over to the next chart——

General POTTER. Yes.

Mr. PHILLIPS. You see that shows the depletion of the upper water basin, and how that has affected the power in your projected chart right there. Now, what assurance do we have that the building of these dams and storage reservoirs will not further deplete it beyond anything that you have contemplated in these estimates? What assurance have we that the amount of power available, from the standpoint of this committee supplying the money, will actually be available at the time the facilities are built?

General POTTER. The water supply, as shown on these charts, is the historical water supply since 1898, sir, and the reservoirs operated against that history. The demands on the water are those demands provided for in the Pick-Sloane plan plus existing irrigation and plans for the expansion of that existing irrigation.

Mr. PHILLIPS. In these calculations which you and the Department of the Interior have made of the amount of power available to be sold at X mills, what calculation have you made above that minimum that is shown on the chart there? You set a minimum yesterday in your testimony which was not the lowest amount of power available. To get the power above that minimum you contemplate going out and buying it from some other source?

General POTTER. The Department of the Interior does.

Mr. PHILLIPS. Yes, that is correct. I use "you" as a general term.

General POTTER. Yes, sir.

Mr. PHILLIPS. That being the case, I think you may have calculated a little too high on the amount of money which will be available from the power over the period of years indicated in the justifications.

General POTTER. Sir, we think it is low because during these good years the return from firm power will be more above the average than this extraordinary drought——

Mr. PHILLIPS (interposing). Is low?

General POTTER. Yes; which would cause it to be low.

Mr. PHILLIPS. That is possible.

Mr. JOHNSON. Sir, I would like to add that in depletions on which this report was based conformed to the program of the Bureau of Reclamation at the time.

Mr. PHILLIPS. At what time?

Mr. JOHNSON. At the time this report was completed in 1951. Since that time the current program and schedule of depletion is at a considerably lower rate.

Mr. PHILLIPS. I get your point.

You realize that we are a little sensitive on this in the part of the country where I live because the calculations that were made when various projects were set up have gone the other way, and we have not developed more water, and, therefore, more power income than was anticipated.

I want to know what protection this committee has, when you set up the estimate for this project that we are not running into the same disappointments in the Missouri Basin.

General POTTER. I can give you an example of that.

The Pick-Sloan plan was based on, roughly, 5 million new acres of irrigation. Our basin review staff, in analyzing that new irrigation, has figured just slightly under 4 million acres in the initial development. Of course, water for that other 1 million acres is now available for other purposes during the economic life of the project.

Mr. PHILLIPS. I think you have given me the answer I want for the record. I hope you are right. When you are dealing with depletions of the amount which I indicated in that chart you are dealing with a rather dangerous factor.

ESTIMATED COST OF COLORADO-BIG THOMPSON PROJECT

If I may turn now to the Colorado-Big Thompson project again, I am not sure that just the statement that the Interior Department decided to make some changes without consulting Congress explains the difference between an estimate of $43 million and one of $159 million. Can you give the committee a better explanation than that? When there is the difference between $43.8 million and $159.4 million that is not what I would just call a slight change in estimates.

Mr. NEILSON. I am sure, Mr. Phillips, that we can give you a reasonably comprehensive statement for the record, because we have done it before.

Mr. PHILLIPS. There must have been some major changes made in the project.

Mr. NEILSON. There were some major changes made in the project. There was quite an extended building period, and there was a very considerable inflation of costs.

Mr. PHILLIPS. We also understand that when a thing drags out the way this has done it raises the costs materially, and I think at least you should indicate that. I do not think you need to restate all of this again. I think it is a matter of previous record, but I think, at least, you should recite for the record what the major changes were which make a change of almost 4 times or 3½ times the original projected cost of the project.

Mr. NEILSEN. As you know, I have been out of touch with the Colorado-Big Thompson for many years, and I would like to submit that for the record.

Mr. PHILLIPS. That is all right.

(The matter referred to is as follows:)

ANALYSIS OF COST INCREASE, COLORADO-BIG THOMPSON PROJECT

The total estimated cost of the Colorado-Big Thompson project at time of authorization in 1937 was $43,883,022. Since 1937 the project cost has increased $115,577,978, making the present estimated cost $159,461,000.

Authorized additions to the project, including the Boulder Creek and South Platte supply canals, increased the cost $1,530,000.

Rise in construction price trends has increased the cost by $55.3 million.

Changes in plan, including substitutions between reservoirs and pumping plants and gravity canals; relocation of the Estes-Foothills power system; adjustment of substation capacities, etc., have increased the cost by $28.3 million.

Structural and engineering modifications, including changing location of Green Mountain Dam; raising Granby Reservoir maximum water level; increasing size of Granby pumping plant; increasing capacity of Estes powerplant; adding canal lining, and raising canal banks and dikes; adding heating devices to structures; modification of outlet works, and adding ground wires, have increased costs by $4.1 million.

Unforeseen conditions such as additional stabilization at Granby pumping plant, grouting at Granby dikes, and correction of unsatisfactory foundation conditions at Green Mountain Dam, have increased costs $3.2 million.

The original estimate was based on preliminary type data. Costs increased $20.5 million when engineering studies and designs were completed.

Construction on some features was carried on under war conditions to provide power facilities to war industries. Other features were delayed because of the emergency. These resulted in increased costs of $3.1 million.

FEDERAL INVESTMENT PER ACRE FOR IRRIGATION

Mr. PHILLIPS. Now, on page BR–153 of the justifications you show the average Federal investment per acre as $162, and there is sort of a little string tied to that. The acreage that can be served, the actual cost per acre is $250, on the basis of the total amount of money that would be used on the project, that is, by dividing one figure into the other, and if you take only the irrigation end of it you still have a little more than $162. Somebody is paying the difference. Is the figure of $162 per acre of the area that can be served, a fair estimate, taking into consideration all of the items that go into putting water on that land? Do you see my point? That is on page 153 of the justifications. Do you have that before you?

Mr. NEILSEN. Yes; I have that.

Mr. PHILLIPS. That is in that horizontal line of figures.

Mr. NEILSEN. I have located it. I am trying to get some figures in my mind here.

Mr. PHILLIPS. Even in that $162 figure you are having power revenue pay $115 of it, and the irrigators pay $47, which is a larger proportion than has been used in some of the projects, but my point is that you have already taken into consideration the power revenue, so we cannot eliminate that completely in getting the cost per acre, and I think that your cost is considerably more than $162 per acre.

Mr. NEILSEN. Let us see if we can work that out. On page 152, at the bottom of the page, under "Repayment of costs allocated to irrigation," you will see there $99 million.

Mr. PHILLIPS. Call it $100 million.

Mr. NEILSEN. Yes.

Mr. PHILLIPS. But that omits roughly $60 million of costs for other items, including the production of power.

Mr. NEILSEN. Yes. This is the cost of separable irrigation features, plus the cost of the power features which are properly assignable to irrigation for repayment. That is the whole of the irrigation enterprise, including costs of joint features, the appropriate part of the costs of the joint features.

The service area is 615,000 acres, sir.

Mr. PHILLIPS. That is correct; that is the figure I used.

Mr. NEILSEN. And when you divide $99 million by $615,000 you get this figure.

Mr. PHILLIPS. You get around $162, but my point is that in between the cost of the actual power features and the cost of the water put on the productive land you have a figure in there that has to be paid by somebody, and a figure that does not appear on page BR–153 of the justifications. Do you think so?

Mr. NEILSEN. I think we ought to change the heading, "Average Federal Investment Per Acre of Area That Can Be Served." That is your difficulty.

Mr. PHILLIPS. Yes.

Mr. NEILSEN. I think if that was changed to "Federal Investment on Behalf of Irrigation Per Acre of Land" that would be accurate.

Mr. PHILLIPS. All right; if I accept your amendment will you insert the words, "Average Total Federal Investment"? In other words, we should have all of the items in there; do you see what I mean?

Mr. CROSTHWAIT. Mr. Phillips, the total cost of the project is presently estimated to be $159 million, of which some $99,650,000 is allocated to irrigation.

Mr. PHILLIPS. That is right.

Mr. CROSTHWAIT. We say of that amount of $99,650,000 which is allocated to irrigation that $29 million roughly, is to be paid back by the water users, and of that amount charged to irrigation some $70 million is to be paid from power.

Mr. PHILLIPS. What is the amount paid back by the water users?

Mr. CROSTHWAIT. $29,031,000. That is on page 152 of the justifications, and the power will return that portion of the cost which is allocated to irrigation in the amount of $70,619,000, making the total of roughly $100 million that has been allocated to irrigation.

Mr. PHILLIPS. Yes.

I think your explanation is plausible, but I think it involves the same thing that I was talking to the Secretary about yesterday, that we have come to a point where policy has to be carefully considered.

We have the tendency of trying to ease the burden on the amount that we are spending to bring additional acreage into production by carefully taking a little cost off here and there and putting it somewhere else. I have the feeling, perhaps intuitively, that if you check it out that $162 is not the actual cost of putting water on that land, just by reading your other figures. Do you think you can convince me differently?

Mr. NEILSON. I think I would agree with you that we could not have built the project without the power facilities for $162 an acre, but if we put power and irrigation together in joint facilities, in reservoirs, dams, and so forth, by a process of estimating we estimate

that $162 is a valid figure on the cost propertly assessable to irrigation out of the combined enterprise.

Mr. PHILLIPS. Let me approach it in another way, which is, really, asking another question. You have already told Mr. Davis in response to his questioning that you have stretched this out to 40, plus 10, and then have used some of the power revenue beyond that time to repay the reclamation cost, is not that right?

Mr. NEILSEN. Yes, sir, that is correct.

Mr. PHILLIPS. That means that you have really, in effect, by an indirect process extended the time, because the original conception of the project was that in a 40-year period both the costs for reclamation and power were to be paid out. If they are not to be paid out that way then we have a new reclamation policy which actually has not been formally approved by the Congress.

INTEREST COSTS

That being the case you add a very important factor, and that is the factor of the cost of money to us. The cost of money to us is about 3 percent. What is the interest which will be paid by the Government to pay out the Colorado-Big Thompson project?

Mr. NEILSEN. Of course, we would have to compute that figure for you.

Mr. PHILLIPS. But the fact is in these large projects the amount of interest over an extended period of years is equivalent to the cost of the project in some cases, is not that right?

Mr. NEILSEN. It can be if you go far enough.

If you want to extend your thinking all of the way you can say the cost of the nonreimbursables, which costs bear interest every year as long as we are on deficit financing, is infinite.

Mr. PHILLIPS. Then you must take into consideration that in the nonreimbursables we are now including items which were not contemplated when the reclamation policy was set up.

Mr. NEILSEN. I think we can all agree that there is an evolution going on in the justification of reclamation projects, and in that evolution the Bureau is not alone. I think the Congress is carrying its share of that evolution as well.

Mr. PHILLIPS. I think Congress asks for many projects that are not justifiable.

Mr. NEILSEN. Some projects are requested where we cannot meet the 40-year repayment schedule.

Mr. PHILLIPS. And I have not seen the Department of the Interior particularly reluctant to start these projects or to take them up, even when they are not feasible.

Mr. NEILSEN. Mr. Congressman, we believe in reclamation.

Mr. PHILLIPS. We do not force things on you, Mr. Neilsen. We all believe in reclamation.

I have just taken 3 percent simple interest in the case of these large projects and the amount of interest people generally consider is equivalent to the cost of the projects, and it may run as high as a billion dollars. If you take interest on interest you see where we get, but I am just taking simple interest in the case of these large projects.

Mr. NEILSEN. Yes; we recognize that that money costs in the neighborhood of 3-percent interest.

Mr. PHILLIPS. I think that has to be added into these projects as a factor of the cost, and you do not do it.

Mr. NEILSEN. We have done it in our presentations since 1944 or 1945.

Mr. PHILLIPS. Mr. Crosthwait said you did not.

Mr. NEILSEN. He did not wait for me to finish, because I think he will agree that in determining the benefit-cost ratio we attempt to find all of the costs which enter into the enterprise, which includes interest during the period with amortization of the capital cost of the project.

Mr. PHILLIPS. During the entire period?

Mr. NEILSEN. Yes, sir.

Mr. PHILLIPS. But you cannot tell me that is in the $162 per acre; can you?

Mr. NEILSEN. No.

Mr. PHILLIPS. You better figure out what the real cost figure is of putting that water on an acre of productive land.

Mr. NEILSEN. We can do that.

Mr. PHILLIPS. That would be satisfactory to me.

Mr. CROSTHWAIT. The basic reclamation law provides that the investment feature of irrigation projects shall be interest free, so that we have not included interest in showing the cost of this part of the project, or on any projects allocated to irrigation.

Mr. PHILLIPS. That was a very nice theory when it started. That was before we added all of these little side issues which were not contemplated in those days. I am sure that was the original intent of the law. What was the original length of time for the repayment of irrigation costs?

Mr. CROSTHWAIT. Fifty years.

Mr. NEILSEN. No; actually I think the first projects were on length of repayment contracts for a period of 10 years.

Mr. PHILLIPS. That is right. If you are going to hold up against my original theory of interest-free land for reclamation, then you have to take into consideration the time contemplated in that connection.

Mr. NEILSEN. We will follow congressional policy, and we are very receptive to some of those things.

Mr. PHILLIPS. You follow congressional policy, but you are not very far behind on some other things.

I have no other questions, Mr. Chairman, about the Colorado-Big Thompson project, largely because I do not know enough about it to ask them.

AVERAGE SIZE OF IRRIGATED FARMS

Mr. RILEY. What is the average irrigated acreage under one ownership in this area? Do you have any figures on the size of the farms that are served by this project?

Mr. NEILSEN. Well, generally.

Mr. RILEY. If you do not have it, supply it for the record. I believe that there is a limitation on the acreage which can be served under one ownership.

(The matter referred to follows:)

FARM SIZES, COLORADO-BIG THOMPSON PROJECT

Total number of farms on the Colorado-Big Thompson project approximates 5,700. These involve a total of about 615,000 acres. The resulting average-size farm is therefore 108 acres.

Mr. NEILSEN. Generally speaking, under reclamation law only 160 acres can be served in ownership; that is, can be served with water. There are a few exceptions to that, the Imperial Valley is one of them, and I think the Colorado-Big Thompson is another.

Mr. WALTER. Yes.

Mr. NEILSEN. In giving this average size, Mr. Chairman, would you be willing that we give you the figures which we developed in 1937 or 1938? I am sure that we do not have up-to-date figures on it. However, the economy of the area has not changed substantially since that time.

Mr. RILEY. We would like to have the best available figures.

Mr. NEILSEN. Those would be the best available figures, without going into considerable research.

Mr. RABAUT. Mr. Chairman, may I ask a question?

Mr. RILEY. Yes.

Mr. RABAUT. Are there any abuses of that 160-acre provision?

Mr. NEILSEN. Yes, there are some.

Mr. RABAUT. Like a family with 5 people in it, and each of them taking 160 acres?

Mr. NEILSEN. That has been held actually not to be an abuse. It has been so held by the attorneys. They say that is legal.

We police our projects from time to time to get them into conformance. We have gotten the Salt River project and the Yuma project down there into complete conformance with the 160-acre limitation. That gets away from us from time to time, and we haul it back.

Mr. RABAUT. How long does it take you to find it out ordinarily?

Mr. NEILSEN. It depends upon a good many things. If we are short of personnel it takes longer than it would otherwise.

Mr. RABAUT. In your experience what have been some of your longest periods?

Mr. NEILSEN. I would say in my experience that we have really gotten militant about it only in the last 8 years or so.

Mr. RABAUT. How long have some of the 160-acre abuses prevailed?

Mr. NEILSEN. There were some longstanding ones.

Mr. RABAUT. For how long, and when did you discover them?

Mr. NEILSEN. We would have to get that information.

Mr. RABAUT. Suppose you supply it for the record.

Mr. NEILSEN. All right, sir.

(The matter referred to is as follows:)

ADMINISTRATION OF ACREAGE LIMITATION PROVISIONS ON BUREAU OF RECLAMATION PROJECTS

The Bureau of Reclamation, operating under the Reclamation Act of 1902 and acts amendatory and supplementary thereto, has for the past 52 years been required by the Congress to limit the delivery of irrigation water to any one owner to not more than 160 irrigable acres. This limitation, an integral part of the original act of Congress in 1902, has since been reiterated in numerous amendatory and supplementary acts. Under section 46 of the act of May 25, 1926, the limitation was further clarified. It is therein provided that a land-

owner is entitled to receive water for more than 160 irrigable acres only if he signs a recordable contract agreeing to dispose of his excess irrigable acreage within a reasonable time at an appraised price which excludes consideration of the value added to said land by construction of the Federal irrigation works.

Based on legal interpretation of the above provision, it has been further determined that excess land is defined as that part of the irrigable acreage in excess of 160 acres held in the beneficial ownership of any single person; or in excess of 320 acres held in the beneficial ownership of husband and wife jointly, as tenants in common or by the entirely, or as community property. It may thus be seen that the acreage limitation is a restriction on the amount of irrigable land for which a landowner can receive water from reclamation works and is not a limitation on the total amount of land that person can own.

Since initial enactment of the reclamation law, the Bureau of Reclamation has consistently endeavored to administer the acreage-limitation provisions thereof under procedures calculated to carry out the intent and purpose of the Congress in a manner most equitable to all concerned. These procedures have included individual water-right applications, the fixing of permissible sizes of farm units on specific projects by the Secretary of the Interior, inclusion of terms and definitions in public notices, and contracts with water users and irrigation districts, the signing of recordable contracts with individual landowners, the payment in full by the landowner of construction charges assigned to the lands in question, and other comparable procedures.

The exceptions to the acreage-limitation provisions of the law that the Congress has seen fit to permit are few. The Colorado-Big Thompson project, on those lands receiving a supplemental water supply, the Humboldt, Truckee storage and Santa Maria projects together with the Owl Creek unit of the Missouri River Basin project constitute the entire list. Although the San Luis Valley project was not exempted, special legislation authorized delivery to each landowner of a quantity of water reasonably necessary to irrigate 480 acres.

Prior to and during the war years the Bureau of Reclamation from time to time, for various administrative purposes, reviewed the actual size of farm ownerships on individual projects. With operating funds and manpower held to an absolute minimum no comprehensive survey of this nature was feasible throughout this period. Instances of violation of acreage-limitation provisions which came to light through normal administrative procedures, as augmented by these intermittent surveys, were resolved as rapidly as possible.

In 1945, with postwar acceleration in the reclamation program imminent, a comprehensive field survey was undertaken to establish basic data relative to excess acreage on project lands. Based on the examination of 4,467,912 irrigable acres served by reclamation facilities, it was determined that, on 918 ownerships, 170,132 irrigable acres representing 3.8 percent of the total area served were in violation of the acreage limitation. A concerted program was immediately inaugurated to bring this area into a state of compliance. Since the 1945 survey, the situation has been under constant review in the field and has been reviewed on a bureau-wide basis anually. Despite such efforts, there have been instances where abnormal or extenuating circumstances have resulted in an individual state of violation for periods which have sometimes extended 3 to 4 years before compliance was achieved. That the desired result is being successfully attained is evidenced by the fact that in 1954 out of a total of 6,989,000 irrigable acres to which water was supplied from reclamation facilities, on only 316 ownerships was a total irrigable area of 41,941 acres in violation. This area represents six-tenths of 1 percent of the total irrigable area served.

It is unlikely that there will ever be a condition of complete compliance throughout the area served. While it is not improbable that the present percentage of lands in violation will be further reduced, economic factors such as foreclosures, sales and exchanges of real property, inheritance and similar circumstances will contribute to transient conditions where a landowner may find himself the temporary holder of excess acreage. The impact of such conditions on a project may conceivably give rise to the impression of a continued state of noncompliance when in reality numerous individuals will have been involved in short periods of excess status.

It is thus apparent that through intensified efforts over the past 8 years there has been a 66 percent reduction in the number of ownerships in violation with a corresponding reduction of 76 percent in the irrigable acres of land involved. There is every reason to believe that continuation of the policies and procedures followed in the foregoing instances will further reduce the problem to its practical minimum.

Mr. RABAUT. You mentioned the Imperial Valley and the Colorado-Big Thompson area, and you said they were exceptions to the rule,

Mr. NEILSEN. Yes, sir, by law, by an exemption in the law.

Mr. RABAUT. What is that exemption?

Mr. NEILSEN. There is no limit.

Mr. RABAUT. It is limitless?

Mr. NEILSEN. That is right.

Mr. RABAUT. Under such a condition you might be developing that whole area for 1 or 2 people.

Mr. NEILSEN. Well, that is not the fact, of course. There were circumstances in both cases if you would like to have me tell you about them.

Mr. RABAUT. Yes.

Mr. NEILSEN. The Imperial Valley was an existing irrigation enterprise which had its economy well settled. Our works provided them with a new canal for diverting water out of the Colorado River entirely within the United States. Previously they had to go into Mexico at some considerable cost as there was no other water available. Congress decided it would not be proper, under the circumstances, to offset that going economic climate, let us say.

The same thing pretty well holds in the Colorado-Big Thompson area, where we had a shortage of water there which was long established, and the Congress just did not want to impose the 160-acre limitation provision there.

I think the 160-acre limitation in the early stages went to the development of raw lands and it followed more or less the homestead theory that 160 acres ought to be enough for a farm.

Mr. RABAUT. My thought about the larger holdings of land is that they are excessive and incongruous to this idea of 160 acres of land to each person. We are waiting for years to collect our money from these irrigation projects, and it hardly seems that where an outfit is of such size as to have tremendous holdings in land that the Government ought to sit by for such a period of time waiting for its money.

Mr. NEILSEN. I think that Congress has had that before it a good many times, and has not seen fit to apply the 160-acre limitation per farm in those areas.

Mr. RABAUT. I know very little about this as this is the first time in my long years in Congress that I have had a chance to learn in detail about these reclamation projects.

Mr. CROSTHWAIT. This Colorado-Big Thompson irrigation supply is mostly supplemental water to supplement the water that they already had.

Mr. RABAUT. What is the percentage of water that is supplemented in addition to what they had?

Mr. WALTER. Well, it is less than 40 percent. Last year we supplied an unusual amount to the system that exists there.

Mr. RABAUT. The system that existed is 60 percent of their present supply now?

Mr. WALTER. Less than that.

Mr. PHILLIPS. I have another question, Mr. Chairman.

Mr. RILEY. All right, Mr. Phillips.

UNEXPENDED BALANCES

Mr. PHILLIPS. On page BR–155 you show an unexpended balance as of last July 1 of $120,000. What did the actual figures turn out to be? Balances usually do not come out, you know, to an even $120,000.

Mr. NEILSEN. They are looking for that information now, Mr. Phillips.

Mr. PHILLIPS. I want to know what the exact amount was on June 30, 1954. You estimated that it might be $120,000. What was it?

Mr. GOLZÉ. That figure is $102,289.

Mr. PHILLIPS. $102,289?

Mr. GOLZÉ. Yes.

Mr. PHILLIPS. On your estimate for 1956, which is the request before us now, you show no unexpended balance for the current fiscal year? What do you estimate it will be?

Mr. GOLZÉ. At the present time we are estimating $10,000.

Mr. PHILLIPS. Thank you, Mr. Chairman.

FORT PECK PROJECT

Mr. RILEY. The next project is the Fort Peck project, Montana and North Dakota. Without objection we will insert pages 189 through 191 into the record at this point and a table showing project changes since the original estimate.

(The matter referred to is as follows:)

FORT PECK PROJECT, MONTANA-NORTH DAKOTA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$21,378,794
Total obligations to June 30, 1954		9,894,794
Allotment, fiscal year 1955	$475,000	
Prior year balance available	13,000	
Total obligations, fiscal year 1955		488,000
Allotment, fiscal year 1956	$325,000	
Total obligations, fiscal year 1956		325,000
Balance to complete		10,671,000

WORK PROPOSED, FISCAL YEAR 1956

Fort Peck-Glendive 115-kilovolt transmission line and substations ($98,299).—Contracts will be awarded for installation at Glendive substation, of the 15,000 kilovolt-ampere transformer bank and associated regulators and switches which will be removed from the Williston substation.

Dawson-Miles City 115-kilovolt transmission line and substations.—Completed in fiscal year 1955.

Dawson-Williston 115-kilowatt transmission line and substations ($45,076).—Funds required for a 115-kilovolt power circuit breakers at Dawson County substation for protective measures, since this substation ties in by means of a short line to the Glendive substation where a 15,000 kilovolt-ampere transformer is to be installed in parallel with existing property.

Transmission lines and substations for REA and irrigation pumping loads (Yellowstone River area).—Scheduled for completion in fiscal year 1955.

Fort Peck-Williston 115-kilovolt transmission lines and substation ($13,000).—The program will complete the remaining work required on installation of a 30,000-kilovolt-ampere transformer bank at Williston substation, and will permit transfer of the replaced 15,000-kilovolt-ampere transformer bank to Glendive substation.

Fort Peck-Dawson County 230-kilovolt transmission lines and substation.—Programed for start of construction in fiscal year 1957.

Fort Peck-Wolf Point 34.5-kilovolt transmission lines and substations.—Completed in prior years.

Missouri-Souris, Mont., transmission lines and substations.—Scheduled for start of construction in fiscal year 1959.

Transmission lines and substations for REA and irrigation pumping loads, Missouri River area.—Completed in prior years.

Fort Peck-Great Falls 161-kilovolt transmission lines and substation.—Scheduled for completion in fiscal year 1955.

Fort Peck-Whately 69-kilovolt transmission lines and substation ($100,000).—Construction contracts will be awarded to begin construction of a new 16-mile long, 69-kilovolt line from Fort Peck powerplant to the existing Whately substation and equipment contracts will be awarded for breakers and switches to modify the Whately substation. These system additions will permit increased power deliveries to area cooperatives so that the Glasgow Air Force Base can be supplied with power, and will permit firm power deliveries to the Montana Power Co. at Whately substation.

Transmission lines and substation for REA and irrigation pumping loads, Milk River area.—Scheduled for construction after fiscal year 1961.

Havre-Shelby 115-kilovolt transmission line and substations ($50,000).—Provides for additions to Shelby substation. Electrical facilities for a direct delivery to the Glacier County Electric Cooperative have been arranged between the cooperative and the Bureau. The cooperative now receives its power supply through the system of a neighboring cooperative. All work will be completed during the current fiscal year.

Metering equipment and other tangible plant ($10,000).—Additional metering equipment to accommodate new customer connections and additional delivery points to existing customers will be installed at various points on the system. Miscellaneous additional property installations relating to customer service will also be required.

Reactive power-control equipment.—Scheduled in fiscal years 1958 and 1959.

General property ($10,225).—Funds are required to complete the carrier current radio communication system necessary for proper power dispatching and system control.

Date of planning: 1933.

Date of advance planning: 1938.

Date of authorization: The Fort Peck Dam was authorized for construction by the Corps of Engineers by the act of August 30, 1935 (49 Stat. 1028, 1034). The act of May 18, 1938 (52 Stat. 403), provided that the Secretary of War was responsible for completion of the dam and powerplant and the Bureau of Reclamation was authorized to provide, construct, operate, and maintain facilities necessary to market energy from the powerplant to existing or potential markets.

Original cost estimate: No estimate included in authorization of 1938.

Date of reauthorization: None.

Present cost estimate: $23,277,000.

Date construction started: 1945 (Bureau portion).

Estimated completion date: 1964.

Remarks: First estimate of $5,050,000 made in 1940 represented the cost of the initial features of the project. The original estimated costs of individual features as they first appeared in successive budget documents totaled $19,767,000. Most of the approximately $3,510,000 increase between the $19,767,000 and present estimated cost of $23,277,000 was due to increases in the general price level.

CONSTRUCTION OF TRANSMISSION LINE TO WHATELY SUBSTATION

Mr. RILEY. This, I understand, is a request for the construction of a transmission line by the Bureau of Reclamation.

Mr. NEILSEN. That is correct, sir.

Mr. RILEY. This is for the construction of a transmission line to the Whately substation. What is the status of that?

Mr. NEILSEN. I will ask Mr. Clinton, our regional director, from Billings, Mont., to respond to the questions on Fort Peck.

Mr. RILEY. Has this contract been let?

Mr. CLINTON. No; it has not, Mr. Chairman. The item you were asking about was the Fort Peck-Whately line?

Mr. RILEY. That is right.

Mr. CLINTON. That is an old line which was built back in 1933, a line about 16 miles long, and it was built to supply construction power for the construction of Fort Peck Dam. It was designed and built for a light load, and since that time it has been used as a transmission line, over some 25 years since then, and we have gotten along by using it as a load-supplying line by reinsulating it and stubbing the poles, but it has gotten to the point now where the line must be rebuilt and replaced.

Mr. RILEY. There are no other lines there that you could use to wheel this power?

Mr. CLINTON. No, sir; there are not.

Mr. RILEY. There are no additional lines owned by either private or public interests?

Mr. CLINTON. No, sir. We have made deliveries for many years at the Whately substation to the Montana Power Co., and we will continue to do so.

One reason for rebuilding the line now is because of the Air Force establishing an airbase out near Glasgow which will depend on this line and that substation for their service.

The Montana Power Co. will serve that station off their transmission system that emanates from our Whately station.

Mr. RILEY. What will be the capacity of that line?

Mr. CLINTON. We are designing it now as a 69 kilovolt line. It was originally built as a 50 kilovolt line.

Mr. RILEY. Will that take care of the foreseeable demand?

Mr. CLINTON. As we have planned it it will take care of, as far as we can foresee, all of the loads in the area, including the Montana Power Co.'s service, cooperatives in that area, plus the airbase with a liberal amount allowed for load growth of all those customers.

Mr. MAGNUSON. I would like to get a little summary of this project. You are only asking for funds for the power end of it. There is a reclamation feature to the Fort Peck project, is there not?

Mr. CLINTON. No, sir; there is not at this time.

Mr. MAGNUSON. There is not?

Mr. CLINTON. No, sir Mr. Congressman.

HISTORY OF PROJECT

I will give you a little history of the Fort Peck project.

The Fort Peck Dam was initiated as part of the public-works program during the middle of the depression, and construction started in 1933. There was provision made at the time when the dam was built for power. The dam was built by the Corps of Engineers. The powerplant was built in later years. The Fort Peck Act, I believe, was passed in 1938, and that authorized the powerplant, and desig-

nated the Department of the Interior as the marketing agency to distribute and market the power, and the Corps of Engineers to build the powerplant. The Bureau of Reclamation built all the lines and markets the power from that initial plant.

There is a plan at the present time for a second powerplant at Fort Peck. If that is built the Bureau will build the additional transmission lines needed and market the power, and the corps will build and operate the plant.

So, at the present time, the Corps of Engineers operates the powerplant, and the Bureau of Reclamation operates and maintains the transmission system and makes the delivery of power to several substations in that marketing area.

FUTURE COSTS OF THE BUREAU OF RECLAMATION

Mr. MAGNUSON. Well, I see that after the proposed allocation for the fiscal year 1956 the balance required to complete it will be $10,671,000. Is that mainly for the additional powerplant?

Mr. CLINTON. It is mostly due to the prospective addition of the second powerplant. This money will be required for the additional transmission lines which will be needed after that powerplant is built. The large one will be a 230-kilovolt line.

Mr. MAGNUSON. Then the $10 million has nothing to do with the cost of the additional powerhouse?

Mr. CLINTON. No; it does not include the cost of the powerhouse. That will be included in the Corps of Engineers' program.

Mr. PHILLIPS. I did not understand that, Mr. Magnuson. You say the $10 million is not included?

Mr. MAGNUSON. The $10 million is only the Bureau of Reclamation's contemplated additional expense after the fiscal year 1956, and it does not include the cost of adding the powerhouse, which the Corps of Engineers will build.

Mr. CLINTON. That is correct.

Mr. MAGNUSON. The Corps of Engineers plans to build that powerhouse.

Mr. PHILLIPS. Am I wrong in trying to get this from the figures on page 189?

Mr. CROSTHWAIT. The details of that additional cost beyond the fiscal year 1956 are contained on pages BR–192 and 193.

Mr. PHILLIPS. Then the figures on page 189 are meaningless. They show the balance to complete is $10,600,000.

Mr. CROSTHWAIT. The details of that are shown on page 192.

Mr. RILEY. The total for 1956 seems to be $325,000, but for future expansion it is $10,671,000, is that right?

Mr. CLINTON. That is the long-range projection of the money we think we will have to put into the transmission system from now on.

CONSTRUCTION OF SECOND POWERPLANT BY CORPS OF ENGINEERS

Mr. MAGNUSON. Of course, that is sort of a piecemeal way of considering it, but this represents only the Bureau's investment and does not take into consideration the Corps of Engineers' expense?

Mr. CLINTON. Yes, sir, that is correct.

Mr. MAGNUSON. I imagine that is considerably greater.

Mr. CLINTON. Theirs would include the cost of the powerplant.

Mr. MAGNUSON. On page 187 there is an original estimated cost of $5,050,000, and the present estimated construction cost is $23,277,000. What happened to this project—was it expanded?

Mr. CLINTON. Most of that is due to the fact that the original estimate contemplated only one powerplant, and possibly one even smaller than the one that was actually built. The current program includes transmission lines for the powerplant as now built, plus a second powerplant.

Mr. MAGNUSON. To keep this clear, these figures do not include the cost of the powerplant?

Mr. CLINTON. No; they do not. These are transmission costs only.

Mr. MAGNUSON. General Potter, can you give us an idea of what the Corps of Engineers' investment is or will be in this powerplant?

General POTTER. The cost of the second powerplant is estimated at $24,400,000.

Last year we got the money to continue the planning on that powerhouse, and the initial plans are finished. However, there is no money for continuing that planning in this year's budget, and the contract is under termination at the present time, that is, the contract for planning.

Mr. MAGNUSON. If, at some future time, additional planning money is received for the second powerhouse, can you pick up where you left off, or have you wasted that money which you have had?

General POTTER. Most of it will be saved. The initial plans will be finished, and we propose that we go back to the same engineering contractor to continue his designs.

Mr. MAGNUSON. How much planning money did you get in the current budget?

General POTTER. We had $220,000, sir.

Mr. MAGNUSON. Have you spent that money?

General POTTER. Yes, sir.

Mr. MAGNUSON. Did you have any planning money in the previous year?

General POTTER. We had $336,000 in 1954, and $25,000 prior to that, sir.

Mr. MAGNUSON. You have spent roughly $580,000?

General POTTER. $581,000; yes, sir.

Mr. MAGNUSON. On planning?

General POTTER. Yes, sir.

Mr. MAGNUSON. Did you request planning money in the coming year's budget?

General POTTER. There is no money in the budget for continuing planning at Fort Peck, sir.

Mr. MAGNUSON. I understand that. I said did the Corps of Engineers request planning money in this year's budget?

General POTTER. Yes, sir.

Mr. MAGNUSON. How much did you request?

General POTTER. The Missouri River Division asked for money to continue planning and start construction. I am not sure whether the corps asked for it or not.

Mr. MAGNUSON. All right; how much did the Missouri River Division request for planning a second powerhouse?

General POTTER. $150,000, Mr. Magnuson.

Mr. MAGNUSON. Does that complete the planning?

General POTTER. No; it will take $300,000 to complete the planning. We could let a contract within 6 months after receiving the additional planning money.

Mr. MAGNUSON. After you get the total of $300,000, or just the $150,000 you request for 1956?

General POTTER. After a go-ahead signal on planning, I presume that would be an indication, sir, that the Congress desired this powerplant to go ahead.

Mr. MAGNUSON. What is the implication of the absence of any additional planning money for this project in the 1956 estimate? Now that we have an investment of almost $106 million in the plant and only half that much more is needed, are we going to infer that the idea is to drop or temporarily hold the project in abeyance?

General POTTER. It is my understanding, Mr. Magnuson, it was felt that the installation of the last two units in Garrison would provide an equal or greater amount of power. Of course, the reason for the second powerplant at Fort Peck is that at the present time we are wasting about half of the released waters. The capacity of the present plant can only use half of the water which is normally released from Fort Peck.

Mr. MAGNUSON. Do the engineers, as things stand now, figure that some day they will build a second powerhouse at Fort Peck?

General POTTER. Yes, sir. May I add to one of my former answers, sir, by saying that the Corps of Engineers did request $1.5 million over the ceiling to start construction of the second powerplant.

Mr. MAGNUSON. Which was not approved by the Bureau of the Budget?

General POTTER. Presumably not, sir.

Mr. MAGNUSON. You told me what the estimate was for the construction of the second powerhouse, but I do not believe you gave me any figure for the cost of the first powerhouse. Do you have that?

General POTTER. I can furnish that, sir.

(The matter referred to follows:)

$15,351,839 of the total cost of $132,529,100 for constructing the entire project is allocated to the first powerplant and its equipment.

Mr. MAGNUSON. Is the second powerhouse to be a bigger unit than what is now in?

General POTTER. It is slightly smaller in size than the present powerhouse. It will have 2 units, as against the present powerhouse of 3.

CONTEMPLATED BUREAU OF RECLAMATION COSTS

Mr. MAGNUSON. The reason I am exploring that is that I noticed the contemplated Bureau of Reclamation cost was approximately one-fourth of what you say the second powerhouse will cost.

General POTTER. I believe their transmission cost is $10 million.

Mr. CLINTON. I would like to explain that a little further. The $10 million shown is a long-range ultimate figure and includes additions to some of the present substations to utilize finally in that area the full output of the present powerhouse. So it is not all the second powerhouse.

Mr. MAGNUSON. Yes; I think I see where I made a mistake. This $23 million figure includes the original $5 million?

Mr. CLINTON. Yes; it does.

Mr. MAGNUSON. Is there much left of the Bureau of Reclamation program if the second powerhouse is not built, or until it is built?

Mr. CLINTON. There will be required, similar to this year, the addition of bays to existing substations and the replacement of some of the old lines we have now. We will have this kind of expenditures each year even if the second powerhouse is not built; but they will be small expenditures.

Mr. DAVIS. None of the funds you are asking for this year have any connection whatsoever with the second power unit at Fort Peck?

Mr. CLINTON. No, sir; they do not.

TRANSMISSION LINES INCLUDED IN 1956 BUDGET

Mr. DAVIS. Are these all interconnected Government-owned transmission lines, or are there some private lines you are tying up with?

Mr. CLINTON. They are all Government-owned lines, but are all interconnected with private powerlines, namely, with the Montana Power Co. system and the Montana-Dakota utility system.

Mr. DAVIS. Do you explore the possibility of having these lines constructed by private companies before Government construction is undertaken?

Mr. CLINTON. Yes, sir. The Montana Power Co. in this case is fully aware of our request for this line and, as far as I know, they have no desire to build it. They have been taking service over the old line for several years and they feel we should replace the line in order to give better service.

Mr. DAVIS. Is this entirely a replacement of some old line that we are talking about?

Mr. CLINTON. Yes; this is a replacement of an old line, about 25 years old, and the additional substation capacity to take care of increased loads.

Mr. DAVIS. What was this reference to the new airbase going up at Glasgow? What part of this request is related to that new airbase?

Mr. CLINTON. The Montana Power Co. will carry power over their system, from our Whately substation at the end of this line, out to the airbase. The airbase load is initially going to be about 1,500 kilowatts.

Mr. DAVIS. In that respect, then, this is not a replacement; is that correct? The justification reference is "to begin construction of a new 16-mile-long" line to replace the existing line. The justification does not include that.

Mr. CLINTON. Maybe we were negligent in preparing the justification if we did not say that, but that is the case, sir.

Mr. DAVIS. It refers to a new line and there is this system of additions which permit increased power deliveries. That does not sound like a replacement to me.

Mr. CLINTON. There is some question whether the old line would have carried the additional load.

Mr. DAVIS. Well, how old is the old line?

Mr. CLINTON. It was built in 1933 and is 22 years old now. It is a wood-pole line and has been "stubbed" once.

Mr. DAVIS. Well, this is not in any sense an addition to the system?

Mr. CLINTON. No; it is not, except for the additional capacity. This will have a fully dependable 69-kilovolt capacity, which the other line did not have.

Mr. DAVIS. That is all.

Mr. RABAUT. You said the old line was recovered?

Mr. CLINTON. It was reinsulated and "stubbed."

Mr. RABAUT. What do you mean by the word "stubbed"?

Mr. CLINTON. That is done when the pole rots out in the ground and you cut the pole off at the top of the ground and put a new piece in the ground and connect the two.

Mr. RABAUT. When did you do that? How much expense did you have for that last year?

Mr. CLINTON. That was done, I believe, 2 or 3 years ago.

Mr. RABAUT. How much expense was that at that time?

Mr. CLINTON. I do not recall now.

Mr. RABAUT. Will you supply that for the record?

Mr. CLINTON. We will.

(The information requested is as follows:)

The expense of stubbing the line was $8,816.36.

Mr. RABAUT. It seems that you spent all that money 2 years ago and now want to throw the whole thing away. The reinsulating of the line must have been quite expensive.

Mr. NEILSEN. The reinsulating of the line. That was several years back.

Mr. CLINTON. That was several years ago. That increased the capacity from 50 kilovolts to 69 kilovolts.

Mr. RABAUT. Do you have 69 kilovolts on it now?

Mr. CLINTON. It is not dependable at that higher voltage.

Mr. NEILSEN. We have two makeshifts on it.

Mr. RABAUT. You have spent money on it twice and now, after that is all spent, you have to have a new line. Can you use the same poles?

Mr. CLINTON. No. That is one of the reasons we want to replace the line, since the old poles are getting rotted.

Mr. RABAUT. Is that "stubbing" quite expensive?

Mr. CLINTON. It is not very expensive. And that is common utility practice, to "stub" poles and get along with a line as long as you can, until the poles have gotten to the point where they are deteriorated and have to be replaced and it is cheaper to build a new line.

Mr. RABAUT. Is it customary to "restub" them after a 2- or 3-year period?

Mr. CLINTON. This was done to take care of an emergency situation.

Mr. RABAUT. And that is what was done here?

Mr. CLINTON. That is what was done here, sir.

AUTHORIZATION FOR FORT PECK PROJECT

Mr. PHILLIPS. May I go back to the authorization for this, because I confess I do not understand it yet? In May of 1938, I presume it was, the Interior Department got an authorization for the building of a project known as the Fort Perk project in Montana and North Dakota. Now, what did you ask for? First of all, how much authorization did you get at that time?

Mr. CLINTON. I do not know all the history of the Fort Perk Act. I am not sure I can answer all your questions on it. My general knowledge of the Fort Peck Act of 1938 was that it provided for the construction of the powerplant by the Corps of Engineers and the construction of the powerlines by the Bureau of Reclamation.

Mr. PHILLIPS. Wait a minute; let me get that straight in my mind. You mean the engineers got authority for it in the beginning, and not the Bureau?

Mr. CLINTON. I do not recall which it was. It may have been.

Mr. PHILLIPS. What I was trying to find out is just that. Was it the engineers?

Mr. CLINTON. I am not sure about that. I do not know the history well enough to tell you.

Mr. PHILLIPS. What does it show as the amount of money authorized? Somewhere in here a figure of $26,061,000 must have been authorized; because your statement on page 185 says that was reduced at some time or other, not giving the date, to $23,277,000. Now do you mean to say you went before the legislative committee and asked for an authorization for only part of a project and let the engineers go somewhere else at that time, or at a different time, and ask for an authorization for another part, and you did not connect those two parts in your justifications?

Mr. CLINTON. I think I am right in saying that if a figure was put in the act it was a combination of the transmission lines and the powerhouse.

Mr. PHILLIPS. Then I turn to this figure on page 187, which shows the original estimated construction cost as $5 million and the present estimated construction cost is $23,277,000, which in itself is reduced from $25,061,000. Now we will take the $23,277,000 figure. How much did you say, General, that powerplant was going to cost?

General POTTER. The new powerplant will be $24,400,000.

Mr. PHILLIPS. According to that statement, the Interior Department must be doing this at a loss of about $10 million, or else they have no authorization. Am I right? I am trying to find out where you have authorization to get a project divided into two parts when one powerplant alone is going to cost more than the entire figure you show on page 187. You see my confusion of mind on that.

Mr. CLINTON. I think you would have to go back to the Fort Peck Act.

Mr. PHILLIPS. I think we had better go back to the Fort Peck Act and find out just exactly where you have the authorization to do this; because it looks to me—and please disabuse my mind if I am not right—it looks to me as if you asked for money to build a few little powerplants and transmission lines and never had authorization for doing more than that, and now you are proposing to spend $23 million, or some other agency of the Government is going to spend it.

Mr. CROSTHWAIT. The authorization act of the Bureau authorized it to build the necessary transmission lines to market the power available from Fort Peck. I do not think that act contained any limitation on what facilities would be required to market that power.

Mr. PHILLIPS. But you yourself show a limitation on page 187 of $23,277,000.

Mr. CROSTHWAIT. That is our present estimate of what will be required.

Mr. PHILLIPS. And that does not include the powerplant.

Mr. CROSTHWAIT. No. It is our present estimate of what will be required to build the necessary transmission facilities to remove the power from Fort Peck and does include the present estimated cost of those transmission facilities in the event the second powerplant is built.

Mr. PHILLIPS. Your contention is the Fort Peck Act, which I have before me, did not include any construction of a powerplant; that you were merely to pick the power up at some given point and deliver it somewhere else?

Mr. CROSTHWAIT. As far as the Bureau of Reclamation is concerned, the legislation authorized the Bureau to market that power and construct the necessary transmission lines that would be required to do that. The actual funds that have been appropriated have been justified each year as to the need of that transmission system.

Mr. PHILLIPS. Developed before this committee, or before the legislative committee?

Mr. CROSTHWAIT. Before the Appropriations Committee. There was no limit in the authorization as to the total cost that might be involved in the building of the transmission facilities that would be required to take that power from the bus bars at Fort Peck.

Mr. PHILLIPS. Let me ask the general where he got the authority to build the $25 million powerplant in the first place.

General POTTER. The Fort Peck Act—and the timing is important here—was passed shortly after the 1936 Flood Control Act which for the first time said that we would generate power when determined by the Federal Power Commission as being practicable. The Fort Peck Act, passed shortly after that, said that at Fort Peck the Corps of Engineers would build the powerplants to realize the benefits of this water if the need for the power was determined by the Bureau of Reclamation, and they then would transmit that power and sell it. Fort Peck was still under construction at this time.

Mr. PHILLIPS. Fort Peck powerplant?

General POTTER. The dam was still under construction by the corps at that time. Under the terms of this act and under the determination by the Bureau of Reclamation as to the need for power, we built and installed a generating capacity for 85,000 kilowatts as being the amount that could be used in that area at that time.

Mr. PHILLIPS. You have already built that?

General POTTER. That is built and in operation. The last unit went in in 1952. Since that time the Bureau and the Federal Power Commission have determined that further power is required in that area, and we have prepared these plans for the second and, I believe, final power installation at Fort Peck.

Mr. PHILLIPS. May I read you from this act?

General POTTER. Yes, sir.

Mr. PHILLIPS. This is section 2 of the Fort Peck Project Act of 1936 and is taken out of a longer paragraph. It says:

The Secretary of War shall install and maintain additional machinery, equipment, and facilities for the generation of electric energy at Fort Peck project when in the judgment of the Bureau—

meaning the Bureau of Reclamation—

such additional generating facilities are desirable to meet the actual or potential market requirements for such electric energy.

That is the only authority you would have to get, a statement from the Bureau of Reclamation that they could use more power?

General POTTER. Yes, sir.

Mr. PHILLIPS. And all you would have to do, if you can get a statement from the Bureau that they need more power, is to come to the Appropriations Committee and get the money.

General POTTER. Yes, sir.

Mr. PHILLIPS. You never appeared before a legislative committee to justify the extent of the power developed?

General POTTER. No, sir; the Fort Peck Act covers that.

Mr. PHILLIPS. Did you ever appear before the legislative committee, the Bureau of Reclamation, to justify the extent of the power developed?

Mr. NEILSEN. I think that would be covered by the act itself; that would have been considered by the legislative committee when the act was written and passed upon.

Mr. PHILLIPS. I am not sure it would, because the corps built a powerplant for 85,000 kilowatts, and what will the new plant develop?

General POTTER. Another 80,000.

Mr. PHILLIPS. In other words, you believe, Mr. Neilsen, that the original submission to the legislative committee covered sufficient equipment to produce 165,000 kilowatts?

Mr. NEILSEN. That must have been before them, or they would not have put that clause in.

Mr. PHILLIPS. It is an open-end clause. It would have to be supported, I suppose, before the committee by other evidence not written into the bill, which must have appeared in the report at that time. That is what I am asking.

Mr. NEILSEN. I think it was.

Mr. PHILLIPS. But you do not know?

Mr. NEILSEN. No; I can only assume it was.

General POTTER. It would be in the hearings.

Mr. PHILLIPS. I suppose it might be helpful for this committee to check and see if there is any authority.

TRANSMISSION LINES INCLUDED IN 1956 BUDGET

Mr. Davis was asking about this expansion for this year, and the next question would be, Are you actually extending any powerlines from that substation, or are you building new lines for power in anticipation of the building of the new 80,000-kilowatt plant?

Mr. CLINTON. No, sir; we are not.

Mr. PHILLIPS. Yet that Glasgow Air Base is being enlarged; is that right?

Mr. CLINTON. That is right.

General POTTER. It is being built.

Mr. PHILLIPS. It is a new base?

General POTTER. Yes, sir.

Mr. PHILLIPS. An entirely new base?

General POTTER. That is right.

Mr. PHILLIPS. The original base is there now.

Mr. CLINTON. No.

Mr. PHILLIPS. How much will it have in the way of personnel?

Mr. CLINTON. I am not familiar with that. Maybe General Potter is familiar with that.

General POTTER. Roughly, 1,000 men.

Mr. PHILLIPS. Which of the various arms are going to be stationed there?

General POTTER. The Air Force Defense Command.

Mr. PHILLIPS. And Montana is a private utility and we are building lines to serve them—building a powerplant of 80,000 kilowatts to serve a private utility?

Mr. NEILSEN. No; they are at present getting service from our substation. The line that comes from Fort Peck to that substation is worn out.

Mr. PHILLIPS. And you have to build a new one.

Mr. NEILSEN. Yes, sir.

POWER SUPPLY AND REVENUE

Mr. PHILLIPS. How much are you charging Montana for that service when you sell to them?

Mr. CLINTON. The present arrangement for the sale of power to the Montana Power Co. that has been in existence for several years is that we sell so-called dump power that our regular customers cannot use.

Mr. PHILLIPS. At the time you select?

Mr. CLINTON. At the time it is available.

Mr. PHILLIPS. How much do you get for it?

Mr. CLINTON. We have been getting 2.5 mills for dump power.

Mr. PHILLIPS. Does 2.5 mills justify the building of a new line?

Mr. CLINTON. The total sale of dump power to the Montana company has gone down gradually as our firm loads have increased.

Mr. PHILLIPS. Can you furnish the committee with a statement of the amount of power you have furnished them in the last calendar year?

Mr. CLINTON. I can give you now the kilowatt loads. In 1956 we anticipate delivery of 7,600 kilowatts to the Montana Power Co.

Mr. PHILLIPS. And how much in 1955?

Mr. CLINTON. I do not recall the figure for 1955.

Mr. PHILLIPS. What was it for 1954?

Mr. CLINTON. I will have to supply that for the record.

(The information requested is as follows:)

During calendar year 1954 the Montana Power Co. was supplied energy at Great Falls and Whatley. The energy and revenue are as follows:

	Kilowatt-hours	Revenue
Great Falls	18,965,166	$47,413
Whatley	24,382,542	60,956
Total	43,347,708	108,369

Mr. PHILLIPS. On your own statement, there, is this necessary, because you say you are reducing the amount you are able to furnish them?

Mr. CLINTON. The amount is gradually being reduced.

Mr. PHILLIPS. If you are gradually reducing the amount furnished them and getting 2.5 mills for 7,600 kilowatts, how much is that in dollars? What is the income from the Montana Power Co.?

Can you translate that into money?

Mr. CLINTON. No, that would have to be converted over into kilowatt-hours, and I cannot do that; I do not have the figures for the kilowatt-hours. This is the total kilowatts available to them, but they do not take that continuously and I do not have the kilowatt-hour figure with me.

Mr. PHILLIPS. What I want to find out is how much you expect to get in 1956 from the Montana Power Co.

Mr. CLINTON. I will have to supply that for the record.

(The information is as follows:)

The expected revenue from Montana Power Co. in fiscal year 1956 from deliveries at Whatley is $183,000.

Mr. PHILLIPS. And then how much it is going to cost should you build this line.

Mr. CLINTON. It is $116,000 for the line and $132,000 for the substation additions. This is an ultimate estimate.

Mr. PHILLIPS. Did the Montana Power Co. pay you $250,000 in 1955?

Mr. CLINTON. I do not recall what they said. But we have other customers there besides the Montana Power Co. We deliver to the Valley County Cooperative and the Northern Electric Cooperative.

Mr. PHILLIPS. Will you give me the figure as to how much you got from the people served by this particular line in 1954, 1955, and estimated for 1956?

Mr. CLINTON. I can include that in the statement to be supplied for the record.

Mr. PHILLIPS. Will you do that?

Mr. CLINTON. Yes.

(The matter referred to follows:)

The expected revenue to be derived from power supplied over the Whatley line is:

Actual, fiscal year 1954	$109,776
Estimated, fiscal year 1955	160,000
Estimated, fiscal year, 1956	250,000

Mr. MAGNUSON. Are these other two customers firm-power customers?

Mr. CLINTON. Those are firm-power customers.

Mr. MAGNUSON. What is their rate?

Mr. CLINTON. 5.5 mills.

Mr. PHILLIPS. Which makes the Montana Power Co. a good customer if they are just taking your dump power. I mean that is a good deal if the Montana Power Co. is just taking your dump power; but what I would like to know is whether the building of this line is justified at a cost of a quarter of a million dollars on the basis of your income from it?

Mr. CLINTON. We made a study of it, of the total income we are getting from that line, and found we were justified in rebuilding it.

Mr. PHILLIPS. You may have made a study, but you are awfully tight in the information you are giving the committee in your justification.

Mr. CLINTON. I did not come fully armed on it.

Mr. PHILLIPS. You spoke about REA co-ops: How many do you have on that particular Fort Peck project?

Mr. CLINTON. I do not recall the total number on the Fort Peck project. We have two that are taking service from this line.

Mr. PHILLIPS. You do not know how many you have on the entire project?

Mr. CLINTON. No; I do not.

Mr. PHILLIPS. Will you put that in the record?

Mr. CLINTON. Yes, sir.

(Information requested is as follows:)

On March 31, 1955, there were 30 cooperatives served from the Fort Peck project.

Mr. PHILLIPS. And they are all firm-power takers?

Mr. CLINTON. Yes.

Mr. PHILLIPS. Are there any more dump customers besides Montana Power Co.?

Mr. CLINTON. No; I do not believe we have any other customers except the co-ops and the Montana Power Co.

Mr. PHILLIPS. I said, Have you any other dump-power customers?

Mr. CLINTON. No.

UNEXPENDED BALANCES

Mr. PHILLIPS. Now turning to page 189, tell me how much money you actually had left over at the end of the last year. The $13,000 is estimated. I want to see how accurate you are in your estimating.

Mr. NEILSEN. While they are looking for that figure, let me ask you to recognize that these figures are prepared in August.

Mr. PHILLIPS. That is why I want to know just what the figure was on June 30.

Mr. CROSTHWAIT. We do not have that figure available.

Mr. PHILLIPS. You people will have to get down to some figures before you satisfy at least one member of this subcommittee. You cannot come up here with an estimate in August and turn in round figures of thousands of dollars and then be asked on March 31 to bring these up to date and give us the same figures you handed in last August You would not like that very much yourself.

Mr. CLINTON. I agree with you on that.

Mr. PHILLIPS. Then while you are doing that, tell me how much money you expect to start the fiscal year 1956 with.

Mr. CROSTHWAIT. Our figures as of the end of March indicate an estimated carryover from 1955 of $10,000.

Mr. PHILLIPS. Last year you estimated $125,000 on the Colorado-Big Thompson and next year you estimate a carryover of $10,000. On Fort Peck you estimated $13,000 last year and you estimated a carryover next year of $10,000. Do you think that is just a coincidence?

Mr. GOLZÉ. Yes. They are prepared on a separate basis. It is strictly a coincidence.

COMPLETION OF PROJECT

Mr. PHILLIPS. How old is this project? How much more time is it going to take to finish it?

Mr. CLINTON. It will depend on when the second powerhouse is built.

Mr. PHILLIPS. Well you have already testified you have nothing in here dependent on the building of the powerhouse. In other words, if the powerhouse is not built, when do you finish?

Mr. CLINTON. We have this situation throughout our transmission system, Mr. Phillips, that as the loads grow, as new customers come on the line, we have to add bays to the substations to take care of them. We have had that situation on the Fort Peck system for several years, and I think it is going to continue for quite a while.

Mr. PHILLIPS. You mean you are going to keep on adding customers to the present system, even though the corps does not have the additional power ready?

Mr. CLINTON. It is of advantage to the Government to get more firm power customers. If they get more firm power customers to take power at 5.5 mills on these lines, it will bring more revenue.

Mr. PHILLIPS. Then you do not have customers for all of your firm power now?

Mr. CLINTON. We still have some that is not being used in that particular marketing area now, but we have an outlet for it. They can take some of it in North Dakota.

Mr. PHILLIPS. You must have calculated when you will reach capacity.

Mr. CLINTON. I cannot tell you how long that will be before we have reached a stratic level, when all of those customers' loands will level off.

Mr. PHILLIPS. You have no idea?

Mr. CLINTON. I do not think anybody can predict that.

NEED FOR NEW POWERPLANT

Mr. PHILLIPS. It is quite evident you do not need a new powerhouse, then.

Mr. CLINTON. Well there is need in that general area of North and South Dakota and Montana.

Mr. PHILLIPS. But you do not know how much power you have and you do not know how much power you can sell; all you know is that you need a new powerhouse.

Mr. CLINTON. Well we do have our load forecasts over the whole area.

Mr. PHILLIPS. But you cannot give that to the committee?

Mr. CLINTON. I do not have that at my fingertips; no.

Mr. PHILLIPS. You do not live here in Washington.

Mr. CLINTON. No; I do not.

Mr. PHILLIPS. You left all of your figures at home. I guess that is all, Mr. Chairman. We seem to be confined to rather limited information.

(Discussion off the record.)

Mr. PHILLIPS. Did you ever offer your firm power to the Montana Power Co.?

Mr. CLINTON. Yes, but on a short-term contract.

Mr. PHILLIPS. And they would not take it on that?

Mr. CLINTON. No; they would not.

Mr. PHILLIPS. What I am trying to find out is whether you need this new powerplant. How do you know you need this new powerplant? What are you going to do with the power, if you get it?

Mr. CLINTON. I can answer you generally in this way, that in the allocation of power that Secretary Aandahl made a year ago about

this time, we had applications from customers in the eastern division that far exceeded what we had available.

Mr. PHILLIPS. Mr. Rabaut made a good point. Your power here is from water; you build a dam and you have a certain amount of power in the water. How much is that; how much would be capable of being developed?

Mr. CLINTON. The point I am trying to make is that we had applications far in excess of what we could meet in 1958 from the scheduled generation of the main-stem plants, and if you meet those additional applications, you require more generation than we have scheduled now.

Mr. PHILLIPS. Could you deal in figures and not just in generalities, for the sake of the committee? Could you say "We have developed so many kilowatts and have applications for so many kilowatts"? Then the committee would do its own subtracting.

Mr. CLINTON. I would rather not trust my memory; I would rather supply that for the record.

Mr. CROSTHWAIT. In connection with this additional powerplant, we were not prepared at this time to discuss the powerload that would require that plant primarily for the reason it is not in our current estimates.

Mr. RABAUT. There is no request in here for the powerplant.

Mr. CLINTON. There is no request in here for the additional powerplant, or money that might be required to build the transmission lines to take care of the load from that powerplant.

Mr. PHILLIPS. I did ask you questions that necessarily would lead to that in the long run, but what I asked was how much power are you producing from your present facilities. And you cannot answer that.

Mr. CROSTHWAIT. That is clearly indicated, I think, in the record. We are using and selling all the power that is presently being generated at Fort Peck. All of that power is presently being marketed.

Mr. RABAUT. There is an 85,000-kilowatt generating capacity at Fort Peck Dam?

Mr. PHILLIPS. You are not exceeding that amount?

SALE OF POWER

Mr. CROSTHWAIT. We are selling all of that power. A small part at the present time is sold as dump power, but the most of it is sold as firm power.

Mr. PHILLIPS. For which you get two and a half mills, but you do not know how much you are selling as dump power. And for the rest of it you get 5.5 mills, which is a fair price.

Mr. CROSTHWAIT. Correct.

Mr. PHILLIPS. I am not at all sure you do not have a satisfactory operation up there, but you are a difficult witness to get information out of.

Mr. CROSTHWAIT. We will furnish the amount of that power being sold as firm and the amount being sold as dump.

(The material referred to follows:)

The total sales from the existing Fort Peck powerplant for calendar year 1954 was 465,935,050 kilowatt-hours of which 43,347,708 kilowatt-hours were sold as dump energy.

Mr. PHILLIPS. And then add to that the information I asked of you, that is, how much power you think can be developed on the river from the present powerhouse and how much power you have actual evidence of people having filed a request for that you might be able to sell.

Mr. CLINTON. We will be glad to furnish that.

(The material referred to follows:)

The powerplants of the eastern division will produce a total of 555,000 kilowatts of marketable firm power in 1956. An additional 29,000 kilowatts from the second unit at Gavins Point will be available in early 1957, and is included to make the total 1957 marketable firm power 584,000 kilowatts. Some additional power will be available in 1958 from the greater operating capacity of the Fort Randall Reservoir filling. An estimate of this additional power is 41,000 kilowatts, making the power available in the winter of 1958 an aggregate of 625,000 kilowatts. These data are based upon the construction program of the Corps of Engineers, median year water conditions, and an operating plan which includes mandatory water releases for navigation purposes.

The total applications for power received and deemed acceptable under the marketing criteria using 1956 estimates of load where applications were uncertain or indefinite amount to 959,000 kilowatts including present commitments.

GENERAL STATEMENT OF CORPS OF ENGINEERS ON MISSOURI RIVER BASIN

Mr. RILEY. The committee will come to order.

We are glad to have with us this afternoon the Army engineers who are in charge of the Missouri River projects.

I will ask General Potter if he will make a short general statement first, and then we will try to move as expeditiously as we can through these various projects.

General POTTER. Mr. Chairman, I would like to start out by just generally showing what our part of this whole Missouri Basin project is.

It consists first of the main-stem reservoirs, whose names have been been given previously.

It consists also of a bank stabilization-navigation project authorized from Sioux City to the mouth, a distance of over 700 miles.

Paralleling that stabilized river there is an authorized agricultural levee program which will protect about 1,500,000 acres.

Mr. RILEY. There are no levees authorized above Sioux City?

General POTTER. No levees authorized above Sioux City, sir.

Mr. RILEY. All right.

General POTTER. Of the 1,500 miles of levees, 200 miles have been built between Omaha and Kansas City, and of the 1½ million acres subject to protection about 200,000 acres now have protection.

Mr. PHILLIPS. In what area?

General POTTER. In the area from Omaha to Kansas City.

Above Omaha work has not yet been started on the levees due to the fact that the river is not yet stabilized, and below Kansas City work has not yet started on the levees because we are not yet assured of control in the Kansas River Basin.

In addition to those are some local protection projects, at Omaha-Council Bluffs, where the work is finished at a cost of about $12 million, and which in the flood of 1952 prevented damage of $60 million, at Kansas Citys, where the work is about 80 percent finished,

and which have operated effectively except in the flood of 1951 when some of those flood walls and levees were overtopped.

In the Kansas Basin we have completed the Kanapolis and Harlan County Reservoirs.

On the main stem we have 10 million acre-feet presently in storage in Fort Peck, 3 million presently in Garrison, 3 million in Fort Randall, a total of about 16 million acre-feet now impounded.

The budget also includes work on a levee project which will be described later. There is another project separately authorized above Sioux City called Miners Bend-Kenslers Bend project which is now in the budget.

Mr. RILEY. Is that a stabilization project up at Miners Bend?

General POTTER. Yes, sir.

Work has progressed very well this year, and for the committee's information I would like to state that on work where the Government estimates totaled $29 million, which estimates as you well know do not include a provision for profit, the contractors' bids were just over $28 million, indicating that we have very good competition and that the Government is getting good returns on its money.

Releases from storage of Fort Peck and Fort Randall this year have enabled us to give a very fine regulation of the river below Sioux City. The chart now being exhibited indicates for 1953–54, in gray, the stage that the river would have had during the months of July through November.

Through releasing water from Fort Peck and then reregulating it through Fort Randall we have been able, as the committee can see, to maintain a flow past Omaha of 35,000 cubic feet a second.

During the current year we hope to have sufficient water to maintain that same picture, and from now on out.

Power-operationwise, Randall started to generate power this year. This chart will show the power generation from Fort Peck in blue and from Fort Randall in red for the years 1951–55, and the great increase due to Fort Randall is quite obvious.

The revenues from this power production, as reported by the Bureau of Reclamation—and as the committee knows, we have no interest in the revenues—indicate those revenues from 1951, where there were about $1 million, to about 1954, when it was over $2 million, and an estimate for 1955 of close to $5¾ million.

Fort Randall power is currently being distributed in South Dakota, Iowa, and Nebraska to municipalities, REA's, utilities, and Government agencies, and by wheeling arrangements is delivered to numerous delivery points scattered throughout the basin.

Mr. PHILLIPS. Is there any attempt to make power cover a continuing area?

General POTTER. The Federal power grid, sir, provides not only for interconnections but for servicing large REA networks in the area. I believe that gives us the coverage you are referring to, sir.

Mr. PHILLIPS. I looked at the position of Randall and Peck and wondered if they were close enough together to cover the whole area.

General POTTER. The area from Fort Peck to Fort Randall is covered, and into that grid there will also come Garrison, whose first power comes on this fall, and Oahe, whose first power comes on in 1961.

NAVIGATION TONNAGE

Navigationwise, due to the fact that we are able to control the releases of water and assure constant depths, private operators have come on the river, 2 private operators were operating on a permit basis, and 3 who operate on a charter basis, and navigation has grown from 1952 from 50,000 tons to in 1954 when it is 287,000 tons. In 1955 we estimate 500,000 tons, and I am told by all the barge operators that I am much too conservative and that it will be 600,000 tons.

Mr. RABAUT. How much of this tonnage on the river is due to the construction which is being done?

General POTTER. Every ton of that is private material, sir. There is no tonnage in there for Government material or sand and gravel, which is a commercial material, also.

Of the 287,000 tons——

Mr. RABAUT. Then there is tonnage beyond this on the river which you do not record?

General POTTER. Yes.

As an example, Mr. Rabaut, in 1953, when we had 152,000 tons on the river, we had 738,000 tons of waterway improvement material and 76,000 tons of sand and gravel.

Mr. RABAUT. All right.

General POTTER. Of the 152,000 tons, 47,000 tons went up river to Omaha.

Of the 287,000 tons in 1952, 102,000 tons went upstream.

Tonnage is largely steel, molasses, sulfur, and items such as that.

The acknowledgment of the people in the area that this navigation is meaningful to them is proven by the influx of new industries that have come to Kansas City, to Omaha, to Nebraska City, and other cities along the waterway.

In addition, the ports and cargo-handling facilities and services have expanded greatly. The city of Kansas City, for instance, last year budgeted $188,000 to improve the handling facilities at that point.

The returns to Kansas City for that 1 year alone were in the neighborhood of about $26,000 to the city.

Mr. PHILLIPS. I presume upriver and downriver mean the direction of traffic?

General POTTER. Yes, sir.

Mr. PHILLIPS. How do they manage to operate economically with such excess in one direction or the other?

General POTTER. The rates must cover that, sir, because some barges do go down empty.

That will be less in the future because grain-handling facilities, which have existed only in Kansas City in the past, will now exist at Omaha, Council Bluffs, Nebraska City, St. Joseph, and other points downstream.

I believe that completes my general statement, sir.

SCHEDULED POWER PRODUCTION

Mr. RILEY. General, when will Garrison start producing power?

General POTTER. This fall, sir.

Mr. RILEY. Oahe is a year or two away?

General POTTER. That starts in 1961.

Mr. RILEY. The planning has not started on Big Bend?
General POTTER. That is right.
Mr. RILEY. How about Gavins Point?
General POTTER. Power comes on in 1956, sir.
Mr. RILEY. So Garrison in 1955, Gavins Point in 1956, Oahe in 1961?
General POTTER. Yes, sir.

CONTROL DAMS WEST OF KANSAS CITY

Mr. RILEY. In your original statement I believe you said that in the Missouri River Valley from Kansas City down to the mouth you have not built any levees to amount to anything because you had to control the water coming in from the rivers west of Kansas City. Is that right?
General POTTER. That is right, sir.
Mr. RILEY. How many control dams would be required to handle that water, or control that water, so that you could go ahead with the dikes from Kansas City to the mouth of the river?
General POTTER. The ones now authorized, Mr. Chairman, which include Tuttle Creek and Milford, and 2 dams of the Bureau not yet started, and 7 smaller dams not yet authorized, but as soon as it is established as a policy that we are going to continue the construction of dams in Kansas we would feel that we would be engineeringly justified in requesting appropriations for levees downstream from Kansas City.
Mr. RILEY. Would you have to complete any of those control dams before you started your levees below Kansas City?
General POTTER. No, sir. It is the policy determination that is holding us up. We would have to have a go-ahead on water-retention reservoirs.
Mr. RILEY. There would be no danger in your opinion in going ahead and planning that work?
General POTTER. It would be a calculated risk, sir, but I believe we would get out of that protection enough good to make that calculated risk worthwhile.
I might say there, sir, that Omaha and Council Bluffs were built on the same basis before the upstream dams were able to do their job of flood control, and we did have a very narrow squeak in 1952 when we had to put extensive amounts of sandbags and flashboards on top of the walls and levees, but we did squeak through, and I think the expenditure at the time it was made was well worth while because of the great damage that was prevented prior to and during 1952.
On the other hand at the Kansas Citys the flood was of such enormous proportions that we did overtop part of the levees and floodwalls.

GENERAL INVESTIGATIONS AND ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. RILEY. I believe you are asking for money to plan 10 projects in the Missouri Valley in this justification, and some $525,000 for advanced engineering and design on 11 projects.
Without objection I will ask that the table be inserted in the record at this point listing the projects and the allocations to each. We recog-

nize, of course, that the allocation for examinations and surveys are tentative.

(The matter referred to is as follows:)

MISSOURI BASIN

JUSTIFICATION OF ESTIMATE

General investigations, fiscal year 1956

1. Examinations and surveys

(*a*) Navigation studies: None.

(*b*) Flood-control studies: The amount of $71,000 is requested for continuation of six studies in the Missouri River Basin during fiscal year 1956.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Kansas: Kansas River	$80,000	$40,800	$20,000	$19,200
Missouri: Lamine and Blackwater Rivers	90,000	36,400	14,000	39,600
Montana: Sun River	50,000	31,200	5,000	13,800
Nebraska: Platte River	264,500	152,500	15,000	97,000
North Dakota: James River, N. and S. Dak.	96,000	28,000	5,000	63,000
South Dakota: Cheyenne River, S. Dak. and Wyo	25,000	0	12,000	13,000
Total	605,500	288,900	71,000	245,600
Grand total	605,500	288,900	71,000	245,600

MISSOURI BASIN

JUSTIFICATION OF ESTIMATE

Conestruction, general, fiscal year 1956

Advance engineering and design

Funds in the amount of $525,000 will be applied to advance engineering and design on 10 projects and restudy of 1 project in the Missouri Basin. Four of those projects will be brought to the stage where construction can be initiated. The review of the project in the "deferred for restudy" will be completed. The 10 projects on which planning will be accomplished are all flood-control projects and have a total estimated cost of $88,719,000.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956	Authorizing legislation	Estimated Federal cost at time of authorization
Navigation projects: None.						
Flood control projects:						
Colorado: Chatfield Reservoir.	$32,600,000	$30,000	$10,000	$32,560,000	1950 Flood Control Act.	$26,300,000
Iowa: Little Sioux River	16,500,000	152,000	150,000	[1] 16,198,000	1947 and 1954 Flood Control Acts.	15,466,000
Kansas:						
Abilene	549,000		30,000	[1] 519,000	1954 Flood Control Act.	533,000
Ottawa	2,990,000		30,000	2,960,000	do	2,868,000
Pomona Reservoir	13,500,000		45,000	13,455,000	do	12,984,000
Salina	1,390,000		65,000	[1] 1,325,000	do	1,354,000
Topeka	12,800,000	748,000	60,000	11,992,000	1936 and 1954 Flood Control Acts.	12,446,000
Montana: Billings	3,800,000	25,000	40,000	[1] 3,735,000	1950 Flood Control Act.	2,681,000
Nebraska: Norfolk	2,720,000		25,000	2,695,000	do	1,628,000
North Dakota: Lower Heart River.	1,870,000		60,000	1,810,000	1954 Flood Control Act.	1,727,000
Total, flood control	88,719,000	955,000	515,000	87,249,000		
Multiple-purpose projects including power: None.						
Reexamination of projects in "Deferred for restudy" category: Levees, South Platte River, Colo.	10,000		10,000		1950 Flood Control Act.	
Grand total, Advance engineering and Design.	88,729,000	955,000	525,000	87,249,000		

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

General POTTER. Each year we submit to the committee the present estimated price of those projects which are now included in the budget.

Mr. PHILLIPS. Could it say "originally estimated to cost so much," or something like that?

General POTTER. That could be done, sir.

General ITSCHNER. You have that in the planning reports.

Mr. RILEY. Off the record.

(Discussion held off the record.)

POMONA PROJECT

Mr. RILEY. Is there any opposition to any of these projects for which you are asking planning money that you know of, General?

General POTTER. I have heard indirectly, sir, that there still remains some opposition to the Pomona project. None has been received in my office, but the project is so urgently required and desired by the downstream farmers and communities, notably Ottawa, Kans., that we feel it and Melvern are essential projects. This one has been selected to start.

Mr. RILEY. So far as you know the opposition is not general. Is it not true that there nearly always are a few who oppose projects of this kind?

General POTTER. I know of only one reservoir, sir, where there hasn't been rather vociferous objection by landowners in the reservoir itself.

Mr. RILEY. Would you say that the objection to the Pomona project is substantial or the usual objection that you run into in cases of this kind?

General POTTER. I would say it was an objection normally to be expected and in no wise adds up to the intensity or desire of the people who will be protected.

Mr. PHILLIPS. Is that south of Topeka?

General POTTER. Yes, sir.

Mr. RILEY. That is one of the projects that would control the water going into lower Missouri?

General POTTER. Yes, sir; out of the Osage.

Mr. RILEY. How many acres would be flooded there approximately?

General POTTER. 9,570 acres, sir. That is the acquisition program.

MELVERN RESERVOIR

Mr. RILEY. You mentioned Melvern. Is there any serious objection on the Melvern Reservoir?

General POTTER. I assume that were it in the budget about the same opposition would obtain.

Mr. RILEY. Both of them are necessary to protect Ottawa and to control the water flowing into the Missouri?

General POTTER. And the farmland down below the reservoirs, sir.

LOWER HEART RIVER PROJECT

Mr. RILEY. In the planning report there is some indication that there is a drainage problem in connection with the lower Heart River project, which is one of the 11 projects listed.

General POTTER. Yes, sir.

Mr. RILEY. Would you comment on that, whether or not the cost will be out of proportion to the benefits?

General POTTER. The project presently constructed at Mandan, included as part of the project, an interior drainage project.

After the levees were built, this interior drainage plan was not completed by the local interests. The authorization of the expanded plan was premised on that interior drainage being agreed to by the local people and being completed.

They have since the authorization of the expanded plan, which is now in the budget for planning, agreed to go ahead on the interior drainage which provides a ponding area and a pumping plant to get rid of excess water.

The problem, I believe, is settled.

Mr. RABAUT. What will be the estimated flow of the river?

General POTTER. Upstream, sir?

Mr. RABAUT. The flow of the water.

General POTTER. It will have a normal flow of 35,000 during the summertime, sir. I would say the speed of the water would be in the neighborhood of 4 to 5 miles an hour.

Mr. RABAUT. Which would be all right.

General POTTER. Yes, sir.

Mr. RABAUT. That is all.

Mr. PHILLIPS. How many acres in the area around the large dams you testified about? How many acres have been under water at the time of flood?

General POTTER. Below Sioux City 1,800,000, sir.

Mr. PHILLIPS. How many acres will be flooded by your dam?

General POTTER. The total acquisition program, about 1 million; one million and a quarter acres, sir.

Mr. PHILLIPS. Then your dam is really a protection against loss of property rather than flooding of acres?

General POTTER. It is an entirely different type of land, sir, as those rainfall lines will show you.

Land below Sioux City is very highly cultivated.

Mr. PHILLIPS. On another subcommittee we had a problem of alleged flood protection in Tennessee in which more acres are now under water for dams than would have been flooded by floods in the next 500 years.

You are not going into a project like that?

General POTTER. No, sir.

Mr. JOHNSON. The plain above Sioux City is entirely different than below. The flood plain is only a mile wide and there is little room for agriculture above.

Below Sioux City the flood plain widens out. At its widest point it is 17 miles wide.

Mr. RABAUT. I am familiar with that area, and I can visualize it.

Mr. RILEY. Is it not true that from Gavins Point on up past Fort Peck that flood plain is very narrow and you have very high elevations on both sides, and that land is practically unusable except the lower part right next to the river?

Mr. PHILLIPS. Would that mean rapid flow in flood time?

General POTTER. Yes, sir; and complete flooding of the entire flood plain up there, also. It is generally used for grazing though there is some wheat acreage in the lower part of the basin.

Our average taking price at Garrison for the 350,000 acres is in the neighborhood of $32 average, whereas land down around Omaha sells from $200 to $400 an acre.

DIFFERENCE BETWEEN EXAMINATION AND SURVEY AND ADVANCE ENGINEERING AND DESIGN

Mr. DAVIS. General, will you explain the difference between what is generally referred to as an examination survey and advanced engineering and design?

General POTTER. Surveys and examinations, sir, result in a document which goes before the Public Works Committee, either recommending for or against a project. That is how projects are authorized.

In that document is included the economic analysis which gives us a B–C ratio.

The engineering and design, sir, is the first step leading to construction, and after 1 or more years, depending on the rate of appropriation, construction plans and specifications result from that work.

Mr. DAVIS. Then an examination survey takes place before a project is specifically authorized by the Congress?

General POTTER. It is the instrument which causes authorization.

LIMITATION OF EXAMINATIONS AND SURVEYS

Mr. DAVIS. What initiates the examination and survey?

General POTTER. A Congressman, either a Representative or a Senator, appearing before his Public Works Committee, requests that a flood problem, a water supply problem, or a similar problem be investigated as to whether or not it is feasible as a Federal project or not.

That resolution is sent to the Chief of Engineers who orders the division concerned to prosecute the study on the basis of the moneys that can be allocated later.

I might say, as you can see in the list there, the Missouri River division has a fair load of such studies and not much prospect of getting them done in a very short period of time.

DEFINITE PROJECT REPORT

Mr. DAVIS. One of the things that this committee has insisted on in recent years is that there be a definite project report available to the committee at the time that the first construcion funds are requested.

Will you explain for the record what is meant by a definite project report?

General POTTER. The first moneys that are given for engineering and design result first in a document called a design memorandum.

This design memorandum in effect is the definite project report.

It establishes the engineeing principles upon which the project will be built. It investigates the foundations, the slopes that are necessary in a dam, the size of the spillway, the location of the various features, and it comes up with a more definitive cost than there has been in the survey report.

To continue, sir, that design memorandum is the basis upon which the plan and specifications are drawn.

Mr. DAVIS. When we are dealing with this item, then, of examination and surveys, we are dealing with a problem for which no definite solution has yet been decided upon. Is that correct?

General POTTER. Yes, sir.

KANSAS RIVER

Mr. DAVIS. First of those items is the Kansas River, for which you are requesting $20,000 to continue planning, or for continued examination surveys which are apparently under way?

General POTTER. Yes, sir.

Mr. DAVIS. The map which you have before the committee in connection with this discussion shows that there are a number of authorized projects on the Kansas River, so that apparently there has been a considerable amount of previous examination and survey in this

general area, and a number of projects have been finalized as the result of those previous studies.

Now will you tell us just what is involved in this particular examination and survey on the Kansas River?

General POTTER. The study which resulted in the last authorization on the Kansas Basin was completed and sent in to the Congress prior to the 1951 flood.

Its engineering is based on a combination of floods, the 1903 and 1909 floods, both of which were much smaller than the 1951 flood.

We felt, as did the Representatives and Senators from the State, that we would have to analyze our projects, already authorized, and see whether others were necessary and capable to protect against such a catastrophic flood.

Based on the first moneys that we received for that study, sir, we found out that the reservoir projects, which were authorized last summer, were adequate to take care of their streams in a flood similar to the 1951 flood, but that the local protection works would have to be expanded and the new plan for the local protection works were given to the Public Works Committee last year, and they are the ones that are authorized.

However, seven additional small reservoirs are going to be required to take care of the 1951 flood.

We were not ready to appear on them last year, nor will we be ready until we have finished this study. We have also been requested by the Senate Public Works Committee to include an analysis of the availability of water for industrial purposes and streamflow regulation in the future.

So 2 things are new—1, the 1951 flood and its potentialities, and the necessity for water during drought years in Kansas. The last 3 years has surely proved it is very inadequate under present situations.

THE VEACH REPORT

Mr. DAVIS. What is the status, as best you know it, of the report of the Governors' Committee, commonly referred to as the Veach report, in which 2 or 3 years ago they in effect said:

> We just don't have any confidence in any efforts to hold the water back as a result of doing this work.
>
> The only thing we can do is to go down to Kansas City itself, remove the walls and build them higher than they are. We might as well plan on this area being flooded. We cannot save it.

Isn't that about what they said, that we should not go ahead with this type of thing you have been talking about?

Mr. PHILLIPS. Who said that?

General POTTER. Three private engineers employed by the Kansas Development Commission. That report was given to the Kansas Development Commission. It was widely discussed in the State. It was not endorsed by the Governor.

It did lead to a resolution of the house of the Kansas Legislature saying, "Let us hold up and study these projects some more."

This month the Kansas Legislature passed another resolution, which passed the house unanimously and the senate with only three dissenting votes, saying that they wanted Federal projects to go ahead for water conservation.

That resolution was read into the records of our Congress by Senator Carlson, and I believe presented to the White House, though the latter I am not sure of.

So there has been a reversal of feeling in the Kansas Legislature.

TUTTLE CREEK

Mr. DAVIS. Do you know whether Tuttle Creek was specifically discussed in connection with that resolution of the Kansas Legislature?

General POTTER. You mean on the floor in the debates, sir?

Mr. DAVIS. Yes, in the debates.

General POTTER. I do know this from my personal knowledge, but it may not be complete.

At least one of the Representatives said that as far as he was concerned this did not mean that he was for a restart of Tuttle Creek.

May I go off the record?

(Discussion held off the record.)

Mr. DAVIS. You stated quite firmly your personal opinion that these examinations and surveys are going to point to the conclusion that seven additional small reservoirs are going to be required.

General POTTER. Yes, sir.

Mr. DAVIS. Are we to assume that this conclusion, that this tentative conclusion of yours, involves the eventual construction of Tuttle Creek?

General POTTER. Tuttle Creek is essential.

And if I may expand that, sir, the Blue River that Tuttle Creek controls is one-sixth of the Kansas Basin, and it is also in the most humid part of the basin.

If the Blue River is not controlled with that enormous amount of water it can put out, then there is no feasible plan for flood control of the Kansas River.

Mr. DAVIS. Is it a fair conclusion from your comments, General, that it would be futile for Congress to appropriate funds for construction on the lower reaches of the Kaw River if Tuttle Creek remains in suspension?

General POTTER. The budget includes as local protection projects for advanced planning and engineering only projects that are not affected by the lack of Tuttle Creek and Milford.

You will notice that there is an item for Topeka in there. That Topeka item is Soldiers Creek and is unrelated to the main-stem problem.

LAMINE AND BLACK WATER RIVERS, MO.

Mr. DAVIS. I want to ask about the Lamine and Black Water Rivers. Will you locate this area for us and tell us something about the problem which has generated this study which is now in progress?

General POTTER. The Lamine-Black Waters is a series of two rivers which enter the Missouri in one channel.

Their problem there has to do with construction by local people in the years past of channel improvement works and drainage districts in the upper part of the river, thus causing a more rapid flow of floodwaters and silt on to the plain part of the river, the part of the river that is in the flood plain.

As a result, flood problems on the lower Black Water-Lamine are intense, and have caused the swamping of a great deal of land that formerly was highly productive.

This study, which has been going on several years, will attempt to come up with a plan that will provide a means of freeing the flood plain from those intense flows from the upper valley.

Mr. PHILLIPS. Permanently swamp them?

General POTTER. Almost, in some places, sir.

Mr. DAVIS. Is there any pending or completed litigation, to your knowledge, for the damage that might be caused to people's land as a result of these structures on the upper portions of the rivers?

General POTTER. No, sir.

Mr. DAVIS. I would assume there would be responsibility on the part of these upper river people who, I assume, have done this completely on their own. There are no Corps of Engineers structures involved?

General POTTER. They are completely local, sir.

Mr. DAVIS. They are completely local?

General POTTER. Yes.

It is possible in most of these States, Mr. Davis, for a drainage district to be formed under State law and under supervision of the county court, to come up with a plan for the drainage or the improvement of their own lands, and many of these States have projects that partially cover a stream, projects that have been put in without any consideration of the damage that the project will do downstream.

Mr. DAVIS. Which raises a very serious question as to whether the Federal Government has a responsibility in that connection.

General POTTER. This survey will discover that. We have not completed this survey. Local cooperation might be an important thing in a project such as this.

(Discussion off the record.)

SUN RIVER, MONT.

Mr. DAVIS. The third request under "Examinations and surveys" is the request for $50,000 to continue studies on the Sun River in Montana. Will you brief us on the problem that is involved here, General?

General POTTER. The largest problem involved here is the city of Great Falls, and the working out of a plan that will protect it against flood from the Sun River.

The study of the upper Sun River is, of necessity, closely coordinated with the Bureau of Reclamation which has proposed irrigation projects on the upper Sun. We are about ready to come with an intermediate report on Great Falls alone.

Off the record.

(Discussion off the record.)

Mr. DAVIS. This entire project, then, is for local flood protection for the city of Great Falls?

General POTTER. As of now, no. We have studied reservoirs up there and it involves coordination with the Bureau which has plans in that area, and which coordination is going ahead in a remarkably fine way, sir.

PLATTE RIVER, NEBR.

Mr. DAVIS. The fourth of these examinations and surveys is on the Platte River, in Nebraska, where apparently a great deal of study work has already been done. The amount of $15,000 is requested as the tentative allocation for this fiscal year.

Off the record.

(Discussion off the record.)

Mr. DAVIS. Will you tell us about this study, General, and the problem that is involved there?

General POTTER. The necessity for this money, Mr. Davis, is almost entirely due to the necessity of coordinating with a proposed development out there called the mid-State development.

The local people have proposed a flood-control plan, an irrigation and power-producing plan. They are working very closely with the Bureau of Reclamation and ourselves. It is a three-way go.

They have, with the private engineers developed their plan and have spent considerable money on it.

As you perhaps know, the Platte in the region of Scottsbluff and downstream is already the center of intense irrigation development, over 1 million acres being irrigated.

This is an attempt by local people to extend that downstream.

Since flood control is involved, and since Congress will accept recommendations from us on the flood control part of it this money is essential right at Omaha, Mr. Davis.

Mr. DAVIS. Where is Scottsbluff along here?

General POTTER. About in here [indicating].

Mr. DAVIS. Away out in the western part of the State?

General POTTER. Yes; and this is intensely developed for power and irrigation.

Mr. PHILLIPS. What is there at Scottsbluff, a dam?

General POTTER. No, sir; a big irrigation development.

Mr. PHILLIPS. But not a dam?

General POTTER. No, sir.

Mr. PHILLIPS. There is no power there?

General POTTER. No, sir. There is a private dam there called Kingsley Dam, which stores water for downstream power and other power production comes from off-hill drops

Mr. PHILLIPS. Small drops?

General POTTER. Yes, sir; all of which are privately owned.

Mr. DAVIS. These studies, then, relate to the western part of the river. In other words, the ones that we are talking about are quite some distance from Omaha?

General POTTER. The ones that we are interested in now; yes, sir. There is $97,000 for future years which does have some flood control on the lower 600 miles, largely to prevent bank erosion.

JAMES RIVER

Mr. DAVIS. On the James River in the Dakotas there is a request for $5,000 for the continuation of an apparently active survey. That is purely a local flood protection problem there, is it?

General POTTER. No, sir; it is the entire basin of the James River from Jamestown to the mouth of the river.

The James River is quite a long river that goes all of the way from the existing Bureau of Reclamation dam up near Jamestown, paralleling the Missouri and coming into the Missouri just below Gavins Point.

Mr. DAVIS. It is not primarily a flood-protection problem?

General POTTER. It is a flood control problem, and it is serious because the return flows from irrigation out of Garrison and Oahe must be carried out through the James River.

The Bureau is not yet ready, and logically so, to say what those return flows will be. There is a very strong James River Development Association which is working with us and the Bureau that is attempting to go ahead as fast as money is available to provide for future of the valley. We have done a considerable amount of work already, and we need to carry on this flood-control work as more flows are developed.

Mr. DAVIS. There is no significant problem, then, in the absence of the irrigation problems resulting from the completion of Garrison and Oahe?

General POTTER. Oh, yes, sir. The James River is as tortuous and flat a stream as I have ever seen. It takes a very small flow to flood it at the present time.

The final solution for flood control, however, is not ascertainable until we find out what these return flows will be.

If there were no return flows there would be a study completed to take care of the existing situation. There is a flood there almost every year, Mr. Davis.

Mr. DAVIS. That gives us a pretty good object lesson in what happens when you stabilize those things upstream. If you get that tortuous James River straightened out and dam that water down near Gavins Point, where you already have a severe erosion problem, what would you do then?

General POTTER. The floods we are talking about, Mr. Davis, might be as high as 15,000 to 20,000 cubic feet a second. The mighty Missouri would take that in stride any day.

Mr. PHILLIPS. Cubic feet?

General POTTER. Yes, cubic feet per second.

Mr. DAVIS. It takes a lot of things downstream with it in its stride.

CHEYENNE RIVER

In South Dakota on the Cheyenne River, apparently there is one case where the term continuing studies does not apply. This appears to be the initiation of a study in this area. What is being studied there looking forward to the question of protection.

General POTTER. Off the record.

(Discussion off the record.)

General POTTER. On the record.

This study was completed and the results were not satisfactory to the Office of the Chief of Engineers, and I believe the Bureau of the Budget.

It was sent back to us, and no moneys were made available. We were asked to give a new estimate to complete it, which we did, an estimate of $25,000.

Considerable interest in the study has now been evidenced during the last year, which is why a request has been put in for funds.

You must realize, sir, that of the many survey reports we have on our books they must go ahead almost on the basis of whether local interests continuously desire them or not. If there is not any local interest, not much work is liable to be done.

Mr. DAVIS. What problem are you seeking the solution of here?

General POTTER. Rapid City, S. Dak.

Mr. DAVIS. When you use the term "unsatisfactory" do you infer from that that you propose something that the Bureau of the Budget and the Chief of Engineers thought was more expensive than it needed to be?

Mr. JOHNSON. As I recall, Mr. Davis, there were some problems relating to the amount of local cooperation which is required.

General POTTER. That is right there, sir [indicating]. It is right in the middle of the Black Hills, Mr. Davis.

Mr. DAVIS. Is there any direct tieup with the Ellsworth Air Force Base out there?

General POTTER. I do not believe so.

Mr. JOHNSON. Only in the sense that Rapid City has expanded considerably over the past 10 years. Part of it has been due to the influx of Ellsworth.

Mr. DAVIS. It is strictly a local flood-protection problem, then?

General POTTER. Yes, sir; as of now.

PRIVATELY OWNED DAMS

Mr. PHILLIPS. When you spoke, General, of private ownership you spoke of these little dams being privately owned. Would you include the REA in that as privately owned, or what would you call it? I do not know of any in that area.

General POTTER. I do not know of any REA dams there.

Mr. PHILLIPS. There are none anywhere that you know of?

General POTTER. I do not know of any.

Mr. PHILLIPS. These dams that you mentioned were small dams?

General POTTER. Very small; yes.

Mr. PHILLIPS. And they were held under private ownership?

General POTTER. Yes.

JOINT PROJECTS ON UPPER SUN RIVER

Mr. PHILLIPS. You mentioned, on the upper Sun River, a project which was jointly constructed or operated by the corps and the Interior Department.

General POTTER. There are joint problems up there, sir. They may have an irrigation project coming out of structures that might be proposed by us.

Mr. PHILLIPS. You heard me inquiring this morning of the Interior Department. I ask the same thing of you: Was it justified and authorized as a joint project at the start?

General POTTER. They are not even recommended for authorization, as far as I know. We have not completed our studies for authorization.

Mr. DAVIS. What is the relationship between the study of this project in the vicinity of Rapid City with what the Bureau of Reclamation has done in this same area?

Mr. JOHNSON. They have a dam upstream which will afford some flood-control benefits to the city of Rapid City.

General POTTER. It will be considered in our studies.

TENTATIVE ALLOCATION OF FUNDS FOR EXAMINATIONS AND SURVEYS

Mr. DAVIS. Then we have a number of projects for which planning funds are requested.

Before I ask you about those, I believe it has been the general practice in the past that the funds for examinations and surveys have been allotted as a lump sum and that the words "tentative allocation" mean just that. In other words, that the funds for examinations and surveys are subject to reapportionment completely at the discretion of the Chief of the Corps of Engineers?

General POTTER. That is right, sir.

ADVANCE ENGINEERING AND DESIGN

Mr. DAVIS. Each of the projects listed under "Advance engineering and design," then, has been definitely authorized as a separate project by the Congress?

General POTTER. Yes, sir.

CHATFIELD RESERVOIR

Mr. DAVIS. This $30,000 previously allotted for Chatfield was provided in the current fiscal year?

General POTTER. Yes, sir.

Mr. DAVIS. This $10,000 which is requested here will complete the planning and bring it to readiness for construction?

General POTTER. No, sir. That money is asked for to enable us to continue our joint studies between the State of Colorado, the city of Denver, the Bureau of Reclamation, and ourselves in the solution of water supply and flood-control problems on that particular stream.

Mr. DAVIS. Do you have the benefit-cost ratio on this?

General POTTER. Yes, sir; it is 1.33 to 1.

Mr. DAVIS. How have you divided the anticipated benefits of this project?

General POTTER. Well, the storage, sir, as of the present time is 180,000 acre-feet for flood control, and 20,000 acre-feet for silt control. So, as of now it is 100 percent flood control, sir.

Mr. DAVIS. What do you have in this project which would promote the general welfare of the city of Denver and adjacent areas?

General POTTER. Our experience in the construction of Cherry Creek, which is on another tributary, the assurance of flood protection from that reservoir, which has never yet operated for flood control, due to lack of floods, has caused the people of Denver to start construction in the Cherry Creek bottom in Denver, the construction of several large and costly buildings. Those buildings have been built in that valley.

Mr. PHILLIPS. Business buildings?

General POTTER. Business buildings; yes, sir. Such as Sears-Roebuck, for instance.

Mr. DAVIS. I do not quite follow you. Is this supposed to protect the reservoir there on Cherry Creek?

General POTTER. No, sir. Cherry Creek is a tributary, and Chatfield is on the South Platte.

Mr. DAVIS. Yes. I am not sure that you have answered me as to what you gain by this project, as one of the things you mentioned is to promote the general welfare of the city of Denver and adjacent areas. We have recognized that it is a part of eliminating the flood hazard for Denver and the defense activities in the locality, but I am not sure what that other term means.

General POTTER. It will prevent flood damage. That is what it means, and it will encourage development, and it will prevent people from being ousted from their houses. This is flash-flood territory, Mr. Davis, and floods happen in a matter of hours.

Mr. DAVIS. When was Cherry Creek completed?

General POTTER. In 1951.

LITTLE SIOUX RIVER, IOWA

Mr. DAVIS. There is a request for $150,000 for the continuation of planning on the Little Sioux River which I understand, is a project which has no relationship to the flood problem at Sioux City.

General POTTER. That is a river south of Sioux City.

This project is for flood protection of an agricultural area, sir. It is an entirely different stream than the Big Sioux.

The upper reaches of this particular stream already have, and there is presently being constructed, a program by the Department of Agriculture.

Our part of the plan has to do with the huge plains area in the flood plain of the Missouri, and involves drainage canals, siltation basins, the straightening of streams, and the construction of levees.

Mr. DAVIS. Is that the Big Sioux, then, that goes through Sioux City itself?

General POTTER. No, sir. The stream you refer to is the Big Sioux.

Mr. DAVIS. Will this complete the planning?

General POTTER. It will let us get going on the first contract, sir.

Mr. DAVIS. What is the benefit to cost ratio?

General POTTER. 1.29, sir.

Mr. DAVIS. This is the minimum of planning, then, that would be required before you would be in a position to go ahead with the construction of any part of the project, is that correct?

General POTTER. Yes, sir.

POMONA RESERVOIR

Mr. DAVIS. Pomona Reservoir is one that Mr. Riley asked you about. There has been a conflict of local interest over this. Am I correct in my recollection that this request was before the committee last year, but because of conflicts the committee deferred it?

General POTTER. No, sir, this was authorized in 1954.

Mr. DAVIS. I guess I am thinking of Pomme de Terre.

General POTTER. Yes, sir, but there is now no local opposition. The State desires the project to go ahead.

Mr. DAVIS. This is a legally authorized project, and this represents the first planning funds. What additional planning funds do you estimate will be required?

General ITSCHNER. $230,000 addition to this amount.

Mr. DAVIS. So that it would be a matter of 2 or 3 years in the future before you contemplate the initiation of any construction on this project?

General POTTER. Yes. Next year's planning funds, if large enough, could let us get the first contracts underway.

Mr. DAVIS. And your benefit-cost ratio there is what?

General POTTER. 1.15.

ABILENE, KANS.

Mr. DAVIS. The next project is Abilene, Kans., where $30,000 is requested. Apparently that is to initiate planning, and from the scope of it I would gather that is purely a local flood-protection program.

General POTTER. That also was authorized in the last flood-control bill, sir.

Mr. DAVIS. What is the benefit-cost ratio?

General POTTER. 2.86.

Mr. DAVIS. That is where the new SAC base is going into the area?

General POTTER. No, sir. There is one at Topeka, and one at Salina. It is Abilene, Tex., that you are thinking of, I believe.

OTTAWA, KANS.

Mr. DAVIS. Then at Ottawa, Kans., which, apparently, is not far away from the Pomona site, $30,000 is requested.

General POTTER. It is just downstream.

Mr. DAVIS. Is that another one of these new authorizations?

General POTTER. Yes, sir.

Mr. DAVIS. Which is for the beginning of the planning, apparently.

General POTTER. It is for levees, channel straightening, and some concrete lining of the river under the presently existing bridges.

TOPEKA, KANS.

Mr. DAVIS. You have already done a considerable amount of work in the Topeka area, have you not?

General POTTER. There is a federally built levee on the south bank of the river, which protects the main portion of Topeka. It was built prior to World War II.

Mr. DAVIS. What is contemplated here?

General POTTER. The extension of those levees downstream, and the protection of North Topeka, which is a city that has grown up remarkably during and since World War II.

Mr. DAVIS. These are flood walls and levee structures that would protect a considerable amount of the metropolitan area of Topeka, even in the absence of the upstream reservoirs, is that correct?

General POTTER. We are proposing in this project to initiate the planning and the preparation of construction for the Soldier Creek

diversion. Soldier Creek is a creek that comes in from the north through North Topeka. The plan calls for the diversion of that stream around North Topeka and into the Missouri below. We are not proposing at this time to start on the main-stem planning.

Mr. DAVIS. Is the diversion of that creek in itself the $13 million project?

General POTTER. No, sir.

Mr. DAVIS. That is your estimated cost of the entire local protection project at Topeka?

General POTTER. Yes, sir.

Mr. DAVIS. How much is your best construction estimate on the Soldier Creek diversion?

Mr. JOHNSON. About $1 million, sir.

BILLINGS, MONT.

Mr. DAVIS. At Billings, Mont., there is a request for $40,000 on about a $4 million project. Apparently some planning has been done there.

General POTTER. It started last year, Mr. Davis.

Mr. DAVIS. Would this complete the planning?

General ITSCHNER. Yes, sir; this will complete the planning.

Mr. DAVIS. Generally speaking, what is contemplated in this project?

General POTTER. Channel straightening, the building of levees and flood walls. I believe it is mostly levees.

Mr. DAVIS. And the benefit-cost ratio is what?

General ITSCHNER. 1.25 to 1.

Mr. DAVIS. I do not suppose you have a separate one for this Soldier Creek diversion?

General POTTER. No, sir.

Mr. DAVIS. It is all wrapped up in one package?

General POTTER. Yes, sir.

NORFOLK, NEBR.

Mr. DAVIS. At Norfolk, Nebr., you are requesting planning money in the amount of $25,000. Is this another one of those fairly new authorizations?

General POTTER. No, sir; Norfolk, Nebr., was authorized in 1950, in House Document No. 215, 81st Congress.

Mr. DAVIS. The benefit-cost ratio is what?

General POTTER. 1.55.

Mr. DAVIS. What is contemplated there?

General POTTER. There is contemplated the carrying of a creek through town by channel and the straightening of levees, and the protection of the major part of the town against floods from the Elkhorn by levees.

LOWER HEART RIVER, N. DAK.

Mr. DAVIS. And the final one among the flood-control projects is the Lower Heart River in North Dakota, where there is requested $60,000 for planning. This appears to be the first of the planning funds. The project involves something less than $2 million. What is the nature of that project?

General POTTER. This project is an extension of the present federally built flood walls and levees which, under flood experience, proved to be too low, and they were overtopped a little bit during the flood of 1952.

This project provides for the extension of them upstream and downstream. It has a benefit-cost ratio of 1.61.

Mr. DAVIS. Where is that?

General POTTER. It is opposite Bismarck, right across the river from Bismarck, sir. The Heart River comes in right there [indicating].

Mr. DAVIS. How much more planning will you require after this?

General ITSCHNER. Another $60,000 will be required to complete the planning.

SOUTH PLATTE RIVER, COLO.

Mr. DAVIS. Now, we have a $10,000 item for a reexamination of the levees on the South Platte River in Colorado which were deferred for restudy. Tell us about that.

General POTTER. The South Platte levees were authorized in 1950.

Due to the extent of the local participation required, the local people indicated that they were not interested in the construction of these levees. These are just downstream from Denver. However, recently there has been some interest shown, and in conjunction with projects upstream at Chatfield and Cherry Creek and the Bureau's projects we felt that these should be looked over to bring the local people and ourselves up to date.

Mr. DAVIS. You thought you had it all worked out once before, is that it?

General POTTER. We thought it was dead before because the local people did not desire it, and now there is an indication that they have renewed interest in it.

Mr. DAVIS. What brought that about; were there any particular developments in this area that did?

General POTTER. I think it is a general increase of the interest in that whole area in the problem of water supply and flood control.

Mr. DAVIS. How important is it?

General POTTER. These levees, Mr. Davis, are around parts of the area that are irrigated out of the Colorado-Big Thompson, and the private irrigation installations.

Mr. DAVIS. If Cherry Creek does its job, is there any need for this?

General POTTER. We have planned in conjunction with Cherry Creek and authorized on that basis.

AUTHORIZATION OF PROJECTS

Mr. PHILLIPS. This comes back to what appears to be my favorite subject.

You testified a moment ago, in talking about the authorization for the general Missouri Basin, that you had apparently secured authorization for each of these individual projects that you were testifying to Mr. Davis about.

General POTTER. Yes, sir.

Mr. PHILLIPS. Yesterday the Department of the Interior, or the Bureau of Reclamation, testified that they did not have to have individual authorizations.

General POTTER. Under the basic conditions in the law, sir, we do have to have authorizations for construction projects.

Mr. PHILLIPS. Thank you.

CONSTRUCTION, CORPS OF ENGINEERS

MISSOURI RIVER, OMAHA TO KANSAS CITY

Mr. RILEY. We will take up the construction requests now. The first project is Missouri River, Omaha to Kansas City. Without objection we will insert pages 11 to13 of the justifications in the record at this point.

(The matter referred to is as follows:)

MISSOURI RIVER, OMAHA TO KANSAS CITY (CONTINUING)

Location.—Channel extending from Omaha, Nebr., to Kansas City, Mo., a distance of 245.8 miles.

Authorization.—1945 River and Harbor Act.

Benefit cost ratio.—1.55 to 1 for entire project, Sioux City to the mouth.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$111, 600, 000	
Estimated local cash contributions	0	
Estimated project cost	111, 600, 000	
Appropriations to June 30, 1954	82, 461, 000	
Appropriations for fiscal year 1955	3, 300, 000	
Appropriations to date	85, 761, 000	77
Appropriations requested for fiscal year 1956	3, 300, 000	80
Balance to complete after fiscal year 1956	22, 539, 000	

PHYSICAL DATA

Channels.—Channel extending from Omaha to Kansas City, a distance of 245.8 miles, 9 feet deep, 300 feet wide, from mile 632.0 to mile 386.2 above the mouth, by revetment of banks, construction of dikes, cutoffs, and by dredging.

Status, Jan. 1, 1955

	Percent	Completion schedule
Lands and damages	83	June 1957.
Bank stabilization:		
Dike and revetment construction	75	June 1963.
Dredging in connection with point removal to obtain desired alinement	71	June 1961.
Removal of rock	31	December 1960.
Removal of structures for realinement	58	September 1961.
Entire project	76	June 1963.

JUSTIFICATION

The project is an essential part of the comprehensive plan for the development of the Missouri River Basin. The project will stabilize the banks of the river throughout the entire length of the project and will provide a navigable

channel for waterborne commerce. Stabilization of the banks of the river from Sioux City to the mouth will insure protection against erosion to agricultural areas totaling over 1,800,000 acres and to municipalities, industries, and other installations with a value of about $2 billion. These installations include major railroad and highway bridges which receive vital protection against being flanked by the meandering river. Stabilization will also permit the construction of levees under the flood-control authorization with assurance they will not be destroyed by the erosive action of the river.

The control works by which the river will be stabilized are subject to destruction by the river until the concave banks are fully stabilized. Delay in accomplishing the necessary control work at the proper time results ultimately in increased costs, since the training structures remain vulnerable to damage by ice runs and floods until given proper reinforcement. Whenever it is necessary to defer essential work, maintenance costs of the project automatically increase owing to the necessity of undertaking temporary emergency measures until the final control works can be installed.

Interstate commerce hearings at Kansas City in 1952 indicated that 700,000 tons of annual traffic could be immediately handled at Omaha if barges were available. In addition to the outbound movement of important commodities of grain and grain products, there are increased demands for inbound movement of other commodities essential to the welfare of the region. Steel firms in the Kansas City and Omaha areas have in recent years steadily increased their demands for barge movements of steel, the demands being greatly in excess of the available water transportation service. Similar demands for barge movement of steel pipe, tin plate, sugar, rice, and molasses is evidenced by the movement of these products upstream to Omaha during the 1954 season by private towing firms. Similar requirements are developing for barge service for petroleum, sugar, fertilizer, and coffee.

The navigation seasons of 1953–54 show a marked increase of interest in Missouri River navigation as evidenced by the number of new carriers actually using the river. The traffic carried by common and contract carriers has increased from 2,640 tons in 1952 to 47,189 tons in 1953, and to about 103,000 tons in 1954, with 5 commercial carriers operating on this section of the river. Improvement and expansion of terminal facilities are being planned, and molasses terminals have been opened this year at Omaha and Nebraska City. The prospects of improved terminal facilities, the increasing number of carriers, and the increasing demand for the movement of commodities essential to the welfare of the region have interested barge line firms on the Mississippi River to the extent that they are closely observing the success of present operations with the intention of initiating their own operations just as soon as they are confident a suitable channel will be provided and maintained.

Fiscal year 1956.—The requested amount of $3,300,000 will be applied to:

Lands and damages	$4,300
Bank stabilization:	
Dike and revetment construction	2,771,600
Dredging in connection with point removal to obtain desired alinement	169,300
Removal of structures for realinement	45,000
Engineering and design	66,100
Supervision and administration	243,700
Total	3,300,000

On the basis of $3,300,000 for fiscal year 1956 it will be possible to continue construction of essential bank-stabilizing work in the most critical areas adjacent to completed Federal levees and existing farm levees protecting highly developed agricultural land; to continue the development toward final stabilization of other locations; and to provide improved alinement and channel conditions favorable for navigation to Omaha.

WORK PROPOSED FOR 1956

Mr. RILEY. General, may we have inserted in the record, also, a table showing the allocation of funds to the various reaches?

General POTTER. Yes, sir. I have such a table for the three reaches available here.

Missouri River, Omaha to Kansas City, work proposed for fiscal year 1956

Lands and damages	$4,400
Dike and revetment construction:	
Council-Plattsmouth bends	372,500
Plattsmouth-Nebraska bends	263,300
Nebraska-lower Sonora bends	335,200
Lower Sonora-upper Indian Cave bends	164,300
Upper Indian Cave-Rulo bends	530,800
Rulo-Mount Vernon bends	389,000
Mount Vernon-St. Joseph bends	92,500
St. Joseph-Atchison bends	249,700
Atchison bend-Leavenworth reach	300,700
Leavenworth reach-Parkville bend	354,000
Dredging in connection with above construction	191,700
Removal of structures for realinement	51,900
Total	3,300,000

Mr. RILEY. Are there any changes of any moment in the schedule of work for 1956 in regard to this stretch, Omaha to Kansas City?

General POTTER. No, sir. The money that is proposed to be made available, $3,300,000, will be used for carrying on the construction of dikes and revetments to further improve the river and protect the high-grade agricultural land that we talked about before.

Mr. RILEY. Are there any problems in connection with the channel and bank-stabilization work, or any objections to the work that is being done along this stretch?

General POTTER. Mr. Riley, in the last 5 years from a feeling on the part of some farmers of resentment, this is probably the most popular work that we do in the valley and lands that are now assured against erosion are being put to work and improvements are being built in the valley that were never thought of before, especially behind the federally constructed levees on this reach, and values of land in the valley have increased from $75 up to $400 an acre.

Mr. PHILLIPS. Please identify the valley.

General POTTER. The Missouri Valley.

Mr. PHILLIPS. The whole Missouri Valley?

General POTTER. This is all of the Missouri.

Mr. PHILLIPS. The whole Missouri Valley?

General POTTER. But we are talking about this particular stretch.

Mr. PHILLIPS. From where to where?

General POTTER. From Omaha to Kansas City.

Mr. RILEY. Do you have any unobligated balance on this stretch of the river?

General POTTER. The unobligated balance at the present time is $175,116. That is as of March 31.

Mr. RILEY. What would be your position at the end of the fiscal year?

General POTTER. Zero.

Mr. RILEY. Evidently you have had very good working conditions there this year?

General POTTER. We have had excellent working conditions there this year and we put the contracts out in smaller overall amounts. We

have a great many contractors on the river at the present time and many of them completed their work prior to the winter close down.

COMPLETION OF PROJECT

Mr. RILEY. What percentage of the work would you say was complete from Omaha to Kansas City?

General POTTER. 76 percent.

Mr. RILEY. What is your estimated completion date provided you get the appropriations?

General POTTER. At the rate appropriations are coming, about 10 years.

LOCAL CONTRIBUTIONS

Mr. DAVIS. You pointed out the great interest in this work because of the increase in land values. Has any consideration been given in recent years, that you know of, to attempting to recoup some part of the Federal cost from those whose values have been greatly enhanced by reason of the Federal expenditures?

General POTTER. For the moneys expended along the river itself, there has been very little local cooperation and that in isolated places for a specific purpose. But for the agricultural levee protection, the local contribution in lands and damages and maintenance of structures after they are completed is quite heavy.

Mr. PHILLIPS. That does not show on the sheet?

General POTTER. Not on this project. That will come under agricultural levees.

BANK STABILIZATION

Mr. DAVIS. About how many different sites would you be working at in the course of a year with this amount of money available?

General POTTER. If the question could be phrased on how many different structures, because some of those structures are a mile long, I would say we would be working at 50 to 75 different places.

Mr. DAVIS. Does it involve that many different contractors?

General POTTER. No, sir. This stretch will involve next year in the neighborhood of 8 to 10 contracts. They generally range from about $200,000 to about $450,000 per contract.

Mr. PHILLIPS. Are they all bank stabilization contracts, or dredging?

General POTTER. This is in the river. There is no dredging, but work in the river involves the driving of pile dikes and piling rock along the dikes to direct the river and the particular structure.

I have some strip maps of that. You can see those things sticking out on the river. We call those dikes. And then the work along the bank is revetment. This is a typical kind of work shown on this strip map, where it clearly shows the location of the dikes [exhibiting].

Mr. PHILLIPS. Out of what is the dike made?

General POTTER. It is made out of piles and stone.

Mr. PHILLIPS. Do you mean that whole embankment is a solid embankment?

General POTTER. Yes, sir.

Mr. PHILLIPS. How high is it?

General POTTER. The rock is brought up to just about the average water level. The dikes themselves stick up about 6 or 8 feet.

Here is a picture that very graphically shows how the river does erode the bank and the proposed work we have to put in there in order to prevent the erosion and also—and incidentally—bring the river into a width that will bring a navigable depth. You can see some of the fill on the righthand side.

Mr. PHILLIPS. Is that natural fill or excavation?

General POTTER. No, sir; it is all natural fill. And we do have a series of pictures that will show that land over a period of 5 years becoming agricultural land.

Mr. PHILLIPS. Who owns it?

General POTTER. The contiguous owner under State law.

Mr. PHILLIPS. He does not pay anything for it?

General POTTER. No.

Mr. DAVIS. This Missouri River is controllable with structures of this kind, so that you have never had to go to anything like the mat revetments and things like that they use on the lower Mississippi?

General POTTER. We have used mats here in the past; but about 1950 we discovered that by the use of rock revetment along the bank we could get a much better and longer lived job at about two-thirds of the cost.

I would like at this time to show you a picture of Miner's Bend and what we have accomplished.

(Discussion off the record.)

COMMERCIAL TRAFFIC ON THE MISSOURI RIVER

Mr. DAVIS. I think last year you inserted some figures or tabulation, or something of that kind, relating to the commercial traffic on the river.

General POTTER. I gave that in my testimony.

Mr. DAVIS. You gave an overall figure.

General POTTER. Yes, sir.

Mr. DAVIS. Do we have a breakdown of the type of shipping or barge freight which was involved in that figure last year?

General POTTER. The 1954 tonnage was made up of 94,000 tons of steel, 38,000 tons of petroleum products, 56,000 tons of molasses, and 83,000 tons of grain moving downstream.

Mr. DAVIS. Last year, if I remember correctly, I believe the bulk of that barge traffic was all handled by one outfit. Is that still true?

General POTTER. There are 2 this year and there were 2 last year. You remember the Federal Barge Lines were sold the year before. They are now operating and there is intense competition between the Sioux City-New Orleans Barge Line and the Federal.

Mr. PHILLIPS. Also they are making money, which they did not do before.

General POTTER. Yes, sir; they are making money. The picture changed when they became privately owned.

(The following information was supplied for the record.)

Missouri River traffic in tons

Calendar year	Sand and gravel	Waterway improvement material	Commercial traffic	Total
KANSAS CITY TO MOUTH				
1949	242,342	576,625	98,441	917,408
1950	169,790	445,859	147,484	763,133
1951	270,320	464,996	60,245	815,563
1952	160,159	969,212	49,285	1,198,656
1953	76,650	737,693	152,001	966,344
1954	(1)	(1)	[2] 287,400	(1)
KANSAS CITY TO SIOUX CITY [3]				
1949	208,869	579,276	11,560	799,705
1950	113,090	736,626	19,496	869,214
1951	280,995	1,088,824	1,794	1,371,613
1952	222,500	1,421,738	2,640	1,646,678
1953	254,060	1,279,133	47,189	1,580,382
1954	(1)	(1)	[2] 102,618	(1)

[1] Not available.
[2] Unofficial.
[3] Breakdown not available, however essentially all of traffic was below Omaha.

NOTE.—Published statistics for commercial traffic (1949 through 1955) have been adjusted to exclude certain items of waterway improvement materials previously reported as commercial traffic.

MISSOURI RIVER, SIOUX CITY TO OMAHA

Mr. RILEY. The next project is Sioux City to Omaha, a distance of 130.5 miles. Without objection, we will insert pages 29 through 31 of the justifications in the record and a tabulation showing allocation to the various reaches.

(The matter referred to is as follows:)

MISSOURI RIVER, SIOUX CITY TO OMAHA (CONTINUING)

Location.—Channel extending from Sioux City, Iowa, to Omaha, Nebr., a distance of 130.5 miles.

Authorization.—1945 River and Harbor Act.

Benefit-cost ratio.—1.55 to 1 for entire project, Sioux City to the mouth.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$103,000,000	
Estimated local cash contributions	0	
Estimated project cost	103,000,000	
Appropriations to June 30, 1954	31,818,000	
Appropriations for fiscal year 1955	3,000,000	
Appropriations to date	34,818,000	34
Appropriations requested for fiscal year 1956	5,800,000	39
Balance to complete after fiscal year 1956	62,382,000	

PHYSICAL DATA

Channels.—Channel extending from Sioux City to Omaha, a distance of 130.5 miles; 9 feet deep, 300 feet wide, mile 632 to mile 762.5 above the mouth, by revetment of banks, construction of dikes, cutoffs, and by dredging.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Lands and damages	1	June 1963.
Bank stabilization:		
Dike and revetment construction	31	June 1964.
Dredging in connection with point removal to obtain desired alinement.	23	November 1963.
Removal of rock	100	
Removal of structures for realinement	2	April 1964.
Entire project	31	June 1964.

JUSTIFICATION

The project is an essential part of the comprehensive plan for the development of the Missouri River Basin. The project will stabilize the banks of the river throughout the entire length of the project and will provide a navigable channel for waterborne commerce. Stabilization of the banks of the river from Sioux City to the mouth will insure protection against erosion to agricultural areas totaling over 1,800,000 acres and to municipalities, industries, and other installations with a value of about $2 billion. These installations include major railroad and highway bridges which receive vital protection against being flanked by the meandering river. Stabilization will also permit the construction of levees under the flood-control authorization with assurance they will not be destroyed by the erosive action of the river.

Construction on the project was suspended during World War II and funds since that time have not been available in sufficient amounts to permit accomplishment of essential work at the proper time. As a result, the project has suffered severely, many control structures have been badly damaged, and the river has reverted largely to its wild state. The original construction at present price levels had a value of about $78 million. The remaining work that could be salvaged at the present time with an active construction program is estimated at $25,600,000. In addition to the economic loss incurred through the destruction of the stabilization works, serious erosion of land is occurring at practically every location from Sioux City to Omaha. The rate of erosion of farmlands is rapidly approaching the condition that obtained under natural conditions, i. e., the loss of about 12 acres per mile per year. Serious erosion is occurring along the waterfront areas and adjacent to the airport at Sioux City, Iowa, and in the reach upstream from Decatur, Nebr., where a new bridge has been constructed, but the left approach cannot be completed until the river is moved under the bridge and stabilized at that location. At Blair, Nebr., serious erosion is occurring just above the highway and railroad bridges. This erosion, if unchecked, will breach the left-bank approaches to the bridges. The control of the river from Blair to Omaha (38.5 miles) is of major importance in that at least $8 million of existing work can be salvaged in the 23.5-mile reach just below Blair, if active construction is resumed in time. In the 15-mile reach immediately upstream from Omaha the value of the existing work is also about $8 million but is in fair condition and not in immediate danger of destruction by erosion. However, it will be seriously threatened if the river reverts to a wild state in the section immediately upstream. Accordingly, the stabilization of the entire section Blair to Omaha is considered necessary for the full protection of the Omaha-Council Bluffs flood-protection system. While commercial navigation in the past has been limited, operators have indicated that they expect to extend operations to Sioux City as soon as channel conditions permit. A suitable navigation channel will be provided by the authorized project.

Fiscal year 1956.—The requested amount of $5,800,000 will be applied to:

Continue correcting the serious erosion along the Sioux City waterfront and adjacent to the Sioux City Air Force Base	$800,000
Continue construction to recapture channel control from Middle Omaha Mission to upper Decatur Bends and protect construction placed in fiscal year 1955	3,500,000
Continue recapturing control of the river between Blair and Omaha to insure protection of Omaha and Council Bluff's from erosion by the river and insure the safety of the flood-control levees protecting these cities	1,500,000
Total	5,800,000

With $5,800,000 for fiscal year 1956, it will be possible to continue construction of essential stabilization structures necessary for alleviating serious erosion threats at the vital locations listed above and insure the success of construction initiated in fiscal year 1955. This amount is required to insure that large amounts of work initiated with fiscal year 1955 and prior-year funds are not lost due to outflanking action and end attack of the river. Once work is started in a reach between hard points on the banks, that work must be brought to completion as rapidly as possible, or the work already placed becomes very vulnerable to attacks of the river and soon would be lost. Active continuation of the work without further delay will also make possible the salvage of much of the existing work which is of significant value, amounting to about $16,000,000 in the Blair-Omaha reach, alone. Full stabilization of this latter reach is of vital importance to the protection of the Omaha-Council Bluffs flood-protection project.

Missouri River, Sioux City to Omaha, work proposed for fiscal year 1956

Lands and damages	$98,500
Dike and revetment construction:	
Upper Sioux City-Middle Omaha Mission Bends	800,000
Middle Omaha Mission-Upper Decatur Bends	2,762,400
Upper Decatur Bends-Upper Little Sioux reach	0
Upper Little Sioux reach-Upper Blair Bends	0
Upper Blair-Lower Rockport Bends	1,200,000
Lower Rockport-Council Bends	300,000
Dredging in connection with above construction	531,900
Removal of structures for realinement	107,200
Total	5,800,000

Mr. RILEY. I believe you are requesting $5,800,000 for the work this year. The estimate, General, seems to have gone up on that. Could you give us a statement as to the reason for the increased estimate?

General POTTER. As the chairman can see, there is a considerable future appropriation to come on this project; so we have across-the-board increased it on the price level basis which caused a price increase of $2,384,600 on that basis. There have been during the year $2,792,000 worth of existing structures destroyed because we did not get to them, and they have just eroded out. We have added about $1 million of engineering and design to the estimate, making a total increase of $6,361,900.

Mr. RILEY. Does that have any effect on the cost-benefit ratio?

General POTTER. The cost-benefit ratio is only figured for the entire river, it having been authorized in two stretches, as you will remember—Sioux City to Kansas City and Kansas City to the mouth. And based on the total cost of the project, the change in the benefit-cost ratio for the stretch Kansas City to the mouth is not appreciable.

Mr. RILEY. What do you propose to do with this additional $1,800,000?

General POTTER. With the $3 million we got this year we started work above Omaha at Sioux City in the Decatur-Blackbird reach. This schedule was thoroughly explained to this committee after appropriation time last year by the Chief of Engineers. The $5.8 million will be used to continue work in those three general localities. If the chairman would like, we have a strip map made up that will show what we have accomplished with the 1955 funds and what we propose to do with the 1956 funds. This is for the stretch above Omaha to Blair showing in green the work we have done this year and, in red, the work we propose to do next year. Of the $5.8 milion, we propose to allocate $1,200,000 to this stretch. This is particularly vital.

Mr. PHILLIPS. What is the distance, approximately?

General POTTER. The scale on this map is 4 inches to the mile. The work in this stretch [indicating] is particularly valuable because of the fact that from this stretch the water goes into a highly controlled stretch past Omaha, where it is very narrow.

At Sioux City, the green indicates we have started at Sioux City in front of Gordon Drive to get the river away from the drive where it has been eroding in the past, and we have put some revetment in the bend in the business district, near the Floyd River. We propose with the money this year to continue that and to go down below the city and start to work along the stretch in front of Sioux City Air Force Base where both commercial and Air Force planes operate. That is where $26 million worth of damage was caused in 1953.

At Decatur, in green, you can see that we have improved the existing revetment above the bridge and have started to put in this revetment which will bring the water under the bridge.

The contractors in both places worked all winter. We just have let the contract to start this canal down here [indicating]. With the money proposed and of the $5.8 million, $3,500,000 will be allocated to this stretch. We will complete that canal, carry the revetment above it so that the water cannot escape into the old channel, and then start work upstream toward Blackbird Point. This is the 12-mile stretch that I indicate had to be considered as one project. If we should do just this [indicating]—and we have put $2 million into that already—and did not continue it, we might as well throw that money away.

Mr. PHILLIPS. Is not that unusual, to build a bridge and then put the water under it afterward?

General POTTER. It has been done to my knowledge in the Missouri Basin four times, but this one got a lot of publicity. We did it at Liberty Bend, sir.

Mr. RILEY. How much more would it take to complete those three stretches you are working on now, in addition to the appropriation?

General POTTER. I testified last year that I did not believe the committee should start the work on the river between Omaha and Sioux City unless they were going to continue it. You remember I strongly advocated that.

Mr. RILEY. I recall that.

General POTTER. And the total estimated cost of this particular stretch is $103 million. It will be 40-percent complete with the moneys we are requesting this year.

Mr. PHILLIPS. How much did you say had been spent all told—$2 million?

General POTTER. Two million dollars was appropriated last year. But we have had up to World War II $31,804,000.

Mr. PHILLIPS. That is from here to here [indicating]?

General POTTER. No; from Omaha to Sioux City. But after the war we did not get any money for it and had to abandon it. That is where those destroyed structures came in. For instance, here is a piece of revetment put in years ago [indicating].

Mr. PHILLIPS. You did not save much money there, did you?

General POTTER. No, sir.

COMPLETION OF WORK

Mr. RILEY. When will these three reaches be completed at the present rate of appropriation?

General POTTER. There is still $5 million to go on this stretch.

General ITSCHNER. It is a total of about $62 million.

General POTTER. It is $8.8 million on the stretch to Blair and, at Sioux City, $2,070,000.

Mr. RILEY. In the neighborhood of $11 million.

General POTTER. Yes, sir.

Mr. RILEY. How much chance are we taking in completing this at the present rate?

General POTTER. Do you mean you want me to complete it in a couple more years?

Mr. RILEY. No; I am asking you what chance are we taking. Are we going to lose any of this work that we would have completed in the meantime?

General POTTER. May I put it this way, Mr. Riley. After talking with the Bureau of the Budget and with this committee last year, a schedule was established to complete the stretch from Omaha to Sioux City in 10 years. It will take an annual appropriation after this year of $6 million a year for this stretch from Omaha to Sioux City.

Mr. RILEY. Am I correct that that will be 8 years after this?

General POTTER. Yes, sir.

OBLIGATIONS AND EXPENDITURES

Mr. RILEY. What is the present unobligated balance on this stretch and how much do you estimate you will have unobligated as of June 30, 1955?

General POTTER. The present unobligated balance is $502,000. On June 30, $43,900 will be unobligated.

Expenditurewise, on this stretch, we have at the present time $2.5 million unexpended and by June 30, $217,500. That $43,900 should be zero by June 30.

Now I call the committee's attention to the fact we did not get a go-ahead on this project, due to the fact you wanted to talk with General Sturgis, in, I believe, September. So we did not get anything under contract until October on this job.

Mr. RILEY. Again, you have had very good working conditions, evidently.

General POTTER. The contractors have worked all winter and have stockpiled all of their rock, so that they will be able to hit it and are hitting it now after the ice went out.

LOSSES TO CORPS INSTALLATIONS

Mr. MAGNUSON. Do I understand you had a loss of $2,792,000 in installations along this stretch for lack of funds to continue the work expeditiously?

General POTTER. That was just last year.

Mr. MAGNUSON. Oh, in a single year?

General POTTER. Yes, sir. It has averaged, since World War II, close to $3 million a year. There are structures there a mile away from the river today.

Mr. MAGNUSON. Were there any of those years since the war when you were given no money for this work?

General POTTER. The money was given to us for maintenance from Sioux City to Kansas City, but there was not enough to do the maintenance for all of it; so, on our own and reporting to Congress, we told them we would have to abandon the stretch from Sioux City to Omaha in 1949, which we did.

Mr. MAGNUSON. What has been the total damage in that stretch of the river over those years?

General POTTER. I would say the total damage is in the neighborhood of $30 million, which is about the amount that was spent. But the prices have gone up so since it was put in.

Mr. MAGNUSON. That is damage to the corps' installations?

General POTTER. Yes, sir.

Mr. MAGNUSON. It certainly seems the best economy is to go ahead and spend the necessary money once you undertake these projects, rather than to incur those terrific losses.

General POTTER. The Bureau of the Budget agrees with the philosophy I indicated by the fact this stretch, which is relatively short, has gotten $5.8 million, whereas Omaha to Kansas City got $3.3 million, and Kansas City to the mouth $2 million.

Mr. PHILLIPS. Did not we take a bigger bite than we could chew on what happened in previous years?

General POTTER. Nothing was done during World War II.

Mr. PHILLIPS. That is what caused it?

General POTTER. Yes, sir. Up to World War II this work was going ahead at good speed.

Mr. MAGNUSON. Was not that salvageable after the end of the war, or any part of it?

General POTTER. It could have been salvaged; but, in 1949, we had to make a decision—are we going to save bits and pieces, or complete the stretch, and the decision was made that we would save the stretch from Omaha to the mouth, which we thought we could do with maintenance money that was being made available.

WEDNESDAY, APRIL 27, 1955.

MISSOURI RIVER—KANSAS CITY TO MOUTH

Mr. RILEY. On yesterday we were discussing individual projects. This morning we take up the Missouri River from Kansas City to the mouth. Without objection, we will insert pages 40–42 of the justifications at this point.

(The matter referred to follows:)

MISSOURI RIVER, KANSAS CITY TO MOUTH (9 FOOT PROJECT)

Location.—Channel extending from Kansas City, Mo., to the mouth, a distance of about 386.2 miles.

Authorization.—1945 River and Harbor Act.

Benefit/cost ratio.—1.55 to 1 for the entire project, Sioux City to the mouth.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$119,000,000	
Estimated local cash contributions	644,400	
Estimated project cost	119,644,400	
Appropriations to June 30, 1954	95,908,000	
Appropriations for fiscal year 1955	2,000,000	
Appropriations to date	97,908,000	82
Appropriations requested for fiscal year 1956	2,000,000	84
Balance to complete after fiscal year 1956	19,092,000	

PHYSICAL DATA

Channel: Kansas City, Mo., mile 386.2 above the mouth to the mouth, 9 feet deep, 300 feet wide, 386.2 miles long, to be obtained by revetment of banks, construction of permeable dikes to stabilize the waterway, cutoffs, and dredging.

Status, Jan. 1, 1955

	Percent	Completion schedule
Lands and damages	34	June 1959.
Bank stabilization:		
Dikes and revetments	83	June 1963.
Dredging and point removal	73	Do.
Rock removal	47	November 1960.
Structure removal for realinements	65	June 1962.
Entire project	81	June 1963.
Controlling depth 6½ feet		Controlling depth 9 feet, June 1963.

JUSTIFICATION

This project is an essential part of the comprehensive plan for the development of the Missouri River Basin. The project is necessary to provide for stabilization of the banks of the river and to accommodate existing and prospective commerce. Stabilization of the banks of the river from Sioux city to the mouth will insure protection against erosion to agricultural and urban areas totaling over 1,800,000 acres of farmland and municipalities, industries, and other installations with a value of about $2 billion. These installations include major highway and railroad bridges which are protected from being flanked by a meandering river. Stabilization will also permit construction of proposed agricultural levee units under the flood-control authorization with assurance they will not be destroyed by the erosive action of the river.

The control works by which the river will be stabilized are subject to extensive damage by the river until the concave banks are fully stabilized. Delay in installing the necessary control work at the proper time results ultimately in increased costs due to the training structures being vulnerable to damage by ice and floods until they are reinforced or final control works are installed. Also, whenever it is necessary to defer essential control work, maintenance costs of the project automatically increase due to the necessity of undertaking temporary emergency measures until final control works can be installed. For example, existing control works at one location, where an abrupt horseshoe bend exists in the river (Jackass bend, mile 343), have deteriorated and have been damaged by recent severe floods to the extent that it is impractical to attempt to further maintain the existing alinement in this bend. Consequently, a major realinement with attendant dike and revetment construction will be required. This realinement is most essential to properly stabile the banks at this location and provide a satisfactory channel for navigation.

The navigation seasons of 1953 and 1954 show a marked increase of interest in Missouri River navigation as evidenced by the number of new carriers actually using the river. Traffic carried by common and contract carriers has increased from 59,285 tons in 1952 with 1 commercial carrier, to 152,000 tons in 1953 with

6 commercial carriers operating on the river. Commerce for 1954 continued the trend by increasing to approximately 287,400 tons. Improvement and expansion of terminal facilities are being planned, molasses terminals have been opened this year at Omaha and Nebraska City, the city of Kansas City has recently authorized the improvement of their municipal wharf and the wharf lessee is preparing to make further improvements which when completed will decrease the unloading time of a 4-barge tow from 3 or 4 days to 24 hours, plans are under consideration by a utility company at Kansas City for dock facilities to handle 300,000 to 500,000 tons of coal annually, and preliminary plans are being prepared for dock facilities to handle coal for a recently completed power plant at Chamois, Mo. The prospects of improved terminal facilities, the increasing number of carriers, and the increasing demand for the movement of commodities essential to the welfare of the region have interested barge line firms on the Mississippi River to the extent that they are closely observing the success of present operations with the intention of initiating their own operations just as soon as they are confident a suitable channel will be provided and maintained.

Fiscal year 1956: The requested amount of $2 million will be applied as follows:

Lands and damages	$2,500
Bank stabilization:	
Dikes and Revetments	1,595,000
Dredging and point removal	75,000
Structure removal for realinement	113,000
Engineering and design	64,500
Supervision and administration	150,000
Total	2,000,000

The above work will permit continuation of construction of bank-stabilization works at critical locations where such work has been started to arrest bank erosion adjacent to several large local farm-levee units, highly developed agricultural areas, a municipal waterworks installation, and a major highway bridge and railroad bridge. Also to continue the program of reinforcing pile structures in critical areas to reduce future maintenance.

Mr. RILEY. What is the status, please, General, of the work from Kansas City to the mouth of the Missouri River?

General POTTER. The status of the work will be 84 percent complete with the amount of funds in this year's budget, Mr. Chairman. At the present time it is 81 percent complete.

Mr. RILEY. Would you give me, please, the unobligated balance at the present time and the estimated unobligated balance on the 30th of June?

General POTTER. The unobligated balance, March 31, Mr. Chairman, $258,837. On June 30, it will be zero. The unexpended balance at the present time, $575,495. On June 30, zero.

Mr. RILEY. You are asking for $2 million to continue this work in fiscal 1956; is that correct?

General POTTER. That is correct, sir.

WORK PROPOSED IN 1956 BUDGET

Mr. RILEY. I will appreciate your inserting a table showing the allocation of funds to the various reaches of this section of the river just as you have done on the others.

General POTTER. Yes, sir. It is prepared and we will hand it in with the records.

(The matter referred to follows:)

Missouri River, Kansas City to mouth, work proposed for fiscal year 1956

Dike and revetment construction:	
Quindaro to Liberty Bends	$124,000
Liberty to Sibley Bends	72,500
Sibley Bend to Lexington reach	40,000
Lexington Bend to Waverly reach	70,500
Waverly to Miami Bends	297,000
Miami to Glasgow Bends	152,000
Bluffport to Boonville reaches	172,500
Boonville reaches to Sandy Hook Bend	136,000
Sandy Hook Bend to Isbell reach	297,000
Isbell to Hermann reaches	136,500
Hermann to Washington reaches	34,000
Washington reaches to Weldon Springs Bend	122,500
Weldon Springs Bend to St. Charles reach	40,000
St. Charles reach to Amazon Bend	84,000
Dredging in connection with above construction	87,000
Removal of structures for realinement	131,500
Lands and damages	3,000
Total	2,000,000

MISSOURI RIVER AGRICULTURAL LEVEES

Mr. RILEY. Next is the Missouri River agricultural levees, Sioux City to the mouth.

Without objection, we will insert pages 63 through 65 of the justification in the record at this point.

(The matters referred to follows:)

MISSOURI RIVER AGRICULTURAL LEVEES, SIOUX CITY, IOWA, TO THE MOUTH

Location.—Along both sides of Missouri River from Sioux City, Iowa, to the mouth, a distance of 765 miles.

Authorization.—1941 and 1944 Flood Control Acts.

Benefit/cost ratio.—1.31 to 1.0.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$156,200,000	
Estimated local cash contributions	0	
Estimated project cost	156,200,000	
Appropriations to June 30, 1954	26,898,000	
Appropriations for fiscal year 1955	400,000	
Appropriations to date	27,298,000	17
Appropriations requested for fiscal year 1956	700,000	18
Balance to complete after fiscal year 1956	128,202,000	

PHYSICAL DATA

Levees.—Average height, 12.6; length (Sioux City to mouth), 1,586 miles; area protected, 1,500,000 acres.

Relocations.—Raise 58 railroad bridges and 32.4 miles of track, involving 10 railroads.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Unit L–650–643–637	0	June 1960.
Unit L–627–624	100	
Unit R–580	100	
Unit L–575	[1] 100	
Unit R–573	100	
Unit R–562	100	
Unit L–561–550	100	
Unit R–548	100	
Unit L–536	[2] 100	
Unit R–616	0	June 1958.
Construction (plans and specifications 80 percent).		
Unit L–614	0	June 1959.
Construction (plans and specifications 50 percent).		
Unit R–520	0	November 1957.
Unit L–519–512–504	0	June 1962.
Construction (plans and specifications 75 percent).		
Unit R–513–512 (c)	70	([3]).
Unit R–500	100	
Unit L–497	0	June 1958.
Construction (plans and specifications 47 percent).		
Unit L–488	88	October 1955.
Unit R–482	100	
Unit L–476	91	June 1955.
Unit L–455	0	June 1959.
Unit L–448–443	89	May 1955.
Unit R–440	93	October 1955.
Unit L–426–419	0	December 1956.
Unit L–400	0	December 1956.
Construction (plans and specifications 100 percent).		
Entire project	16	1973.

[1] Complete except for settlement of pending litigation.
[2] Complete except for tie-back levees which will be built in the future.
[3] Construction of section III levees deferred indefinitely.

JUSTIFICATION

The Missouri River agricultural levees will provide substantial protection along, and in combination with upstream reservoir projects included in the comprehensive plan for improvement for flood control and other purposes in the Missouri River Basin, will provide protection against destructive floods of a magnitude equal to those of past record for 50 small communities, 1,500,000 acres of agricultural lands, highways, railroad lines, and power and communication facilities in the Missouri River flood plain. It is estimated that property losses, crop losses and other damages in rural areas and small communities along the main stem of the Missouri River, between Sioux City, Iowa, and the mouth, have amounted to approximately $375 million during the period 1942 to 1953.

Fiscal year 1956.—The requested amount of $700,000 will be applied to:

Initiate construction of unit L–400	$538,600
Engineering and design on other units	161,400
Total	700,000

The funds requested for fiscal year 1956 will be utilized to initiate construction of unit L–400. Unit L–400 will protect agricultural lands devoted to general farming and truck farming downstream of and opposite Leavenworth, Kans. Rights-of-way were provided and acceptable bids were received for construction of unit L–400 during 1950. Award of the contract was canceled due to economy measures effected as a result of the Korean emergency.

Due to the constantly increasing value of the lands, crops grown thereon, improvements on the lands, and the continually expanding economic development of the area to be protected, recurrent flood damages cause serious economic hardships not only to the owners of the property protected but also to the region as a whole. Although local interests have spent millions of dollars for construction of farm levees, the past history of failure of these levees and the magnitude of property losses, crop losses and other flood damages in the rural areas and small communiites along the main stem of the Missouri River between Sioux City and the mouth, which amounted to more than $375 million in the period 1942–53, indicates the necessity for early initiation and completion of unit L–400, and other units, as fast as plans cans be completed and funds provided for construction thereof.

Mr. RILEY. What is the status of the work in regard to this year's appropriation?

General POTTER. Mr. Chairman, of the units between Omaha and Kansas City, and that is the only reach in which we have done any of these agricultural levees, 15 units are in operation which protect 200,000 acres.

The request this year is for $700,000 to start unit L–400 upon which we had taken bids at the time of the Korean emergency. Those bids were all thrown out in view of the necessity of not entering into new projects at that time.

As of March 31, Mr. Chairman, we have unexpended $844,848 and unobligated $341,945. All but $132,800 of that will be obligated this year, and that amount, together with this $700,000, will be applied to continue the engineering studies, preparation of plans and specifications on several units, and the construction work.

If the chairman wishes, I could identify the units upon which we propose engineering studies and completion of plans with this money.

Mr. RILEY. We ought to at least insert it in the record.

General POTTER. Yes, sir. I would like to identify various ones upon which the major amounts are being spent.

Units L–519 and 512 and 504 will be allocated $50,000.

Unit L–455, $70,000.

Unit L–497, $69,500.

Unit R–616, L–614 and 520, $10,000 each.

$538,600 will be applied to the construction of unit L–400 and a number of other units between Omaha and Kansas City will receive a total of $204,700 for advanced engineering and design.

As the chairman realizes, the construction of these levees demands considerable organization on the part of the local interests who must put up the lands and damages in the areas upon which the levee will be built. The formation of that organization takes as much as 4 or 5 years and they are unable to go ahead until we are able to show them exactly where the levee will sit because they must go before the county court and identify the exact lands that must be condemned for this purpose.

So, while the amount in the budget, plus the remainder of the unobligated balance adds up to $1 million, all of that money is required so that this project cannot only be started at L–400 but so that the engineering can continue on these other projects and the local interests will know where they stand.

The chairman will remember that last year I indicated that the rather large unobligated balance would be put to work for the under seepage control works. I would like to report, sir, that all of those contracts have been let and are underway at the present time.

Mr. RILEY. The Agricultural levees are the only projects along the main streams that are required to have local participation; is that right?

General POTTER. Yes, sir.

COST-BENEFIT RATIO

Mr. RILEY. I notice that the cost-benefit ratio has been changed from 1.5 to 1.31. Could you give us the background necessitating that change?

General POTTER. The major reason for that, Mr. Chairman, is that instead of calculating the benefit-cost ratio on the basis of projected benefits, we have gone to a method calculating it on the basis of current prices. That was due to the fact, sir, that we don't think that the way prices have been going in the last few years that you can project them meaningfully.

So, while there has been an increase in cost in the total project, from Sioux City to the mouth, the benefits and costs are calculated on exactly the same basis.

Mr. RILEY. It is a question of increased cost of the work from actual experience, is it?

General POTTER. The total project, sir, has increased $5 million in cost, part of which is engineering and design. The major part of the increase, $3,830,000, is due to price-level increases shown by the ENR index.

INCREASES IN ENGINEERING AND DESIGN COSTS

Mr. RILEY. What caused the increase on the engineering and design?

General POTTER. Sir, the project since 1950 has not gone ahead. There is a greater length of time over which engineering and design has to be spread which involves much more intensive working with the local interests. Up until the time construction starts, of course, all of that is charged to engineering and design.

Also, during our experience during the 1951 flood, we gained or gathered an enormous amount of data relative to the operation of underseepage on these levees, most of which were put under very intense loads during that flood. That data being gathered have increased the cost of engineering in solving the underseepage control problem.

Mr. RILEY. Do I understand from your statement that had this work been started sooner, some of this engineering and supervision would have been included in the construction work?

General POTTER. No, sir, but the length of time of construction of the whole project would have been shorter. We used to think that we would construct these levees in about a 10-year period. We are not sure that is right any more. Our experience in the last few years has indicated that it is going slower than that. So the costs that are incurred are spread out over a longer period and are logically greater.

Mr. RILEY. Does this delay cause additional engineering?

General POTTER. Yes, sir.

Mr. RILEY. I notice here that $130,000 was borrowed from this project. When will that be returned?

General POTTER. It is planned to repay it in 1956.

Mr. RILEY. Could you give us some idea as to what the percentage of the funds now in hand for this purpose will be obligated during the next year?

General POTTER. We believe, sir, that all of these funds that we have asked for and which will be carried over, will be obligated during the current year.

Mr. RILEY. Including the new appropriation?

General POTTER. I assume, sir, you meant, during 1956?

Mr. RILEY. That is right, fiscal 1956.

General POTTER. Yes, sir.

(Discussion off the record.)

MAINTENANCE OF LEVEES

General POTTER. On the record, I would like to state that we have been extremely well satisfied with the way these people maintain their levees. They have taken it as a real duty. They have hired personnel and bought equipment to keep them mowed and repaired.

Mr. MAGNUSON. Does the Government have no further responsibility after the levees are constructed?

General POTTER. That is right, sir.

Mr. MAGNUSON. Suppose a levee were to be washed out. Who would rebuild it?

General POTTER. We have had experience in having one of these levees overtopped in the 1951 flood with extensive damage. In that case, we assumed the repair as a Federal responsibility, since the Congress, during World War II, set up a policy that we would repair locally produced levees that had been overtopped and damaged, but we feel that the Federal Government's responsibility is only in the case of such a disaster but not the normal maintenance that keeps a levee good.

Mr. MAGNUSON. I see. That is all, Mr. Chairman.

CARRYOVER FUNDS

Mr. DAVIS. How did you happen to carry this large amount of $1,200,000 over into the current fiscal year, General?

General POTTER. Well, $130,000 of that, Mr. Davis, was loaned from this project which will be returned.

Mr. DAVIS. Into this current fiscal year, is $1,200,000?

General POTTER. Yes, sir. If you remember, last year I explained that we still had the contracts to let for all the interior drainage and that we have had difficulties in working out the best way of providing interior drainage. I told the committee last year, Mr. Davis, that this year we would have all of those interior drainage facilities under contract and I have recently stated that that has been done.

Mr. DAVIS. This year, then, you contemplate making a very substantial start on L-400 and the rest of it appears to be mostly patchwork in emergency areas, is that so?

General POTTER. No, sir. The remainder of it is for engineering and design, preparing the plans and specifications for the units that I have already identified for the record, Mr. Davis.

Mr. DAVIS. This work in the current fiscal year and in 1956 all of it is being done pretty well down toward the mouth of the river, although the authorizations cover Sioux City to the north?

General POTTER. Above Kansas City.

Mr. DAVIS. Above Kansas City.

General POTTER. As I explained yesterday, we do not feel we should start below Kansas City until work is started on the reservoirs in the Kansas Basin.

Mr. DAVIS. Above Omaha would be wasteful until the river itself has been stabilized.

General POTTER. We don't propose levees above Omaha until the river is stabilized.

Mr. DAVIS. That is all, Mr. Chairman.

ESTIMATES OF COST OF PROJECT

General POTTER. Mr. Chairman, thinking about my successor in the Missouri River division next year, could I advance some information on the cost of this particular unit which I think is important?

Mr. RILEY. Yes, sir.

General POTTER. I indicated to the committee that we had taken bids on this unit in 1950, that they were thrown out, and the unit was not started because of the Korean emergency. The bids that we got lowered the estimate that we had on this project over $200,000. Our present estimate is based on those very low bids that we got. We have in the last year gotten very favorable bids on earthwork jobs we have let in the basin and we think that is a good basis upon which to make the estimate of cost of this unit. But in case competition is not so keen this fall, I would like to have the committee know that this estimate is based on those very good bids that we got in 1950 and 1951.

Mr. RILEY. Are you getting dirt moved out there for approximately the same cost today that you were getting it in 1950?

General POTTER. We are getting some bids, sir, that—off the record.

(Discussion off the record.)

General POTTER. Mr. Chairman, the bids we have been getting are very good bids and comparable to those we have gotten over the last 2 or 3 years.

MISSOURI RIVER—KENSLERS BEND TO SIOUX CITY

Mr. RILEY. The next project is the Missouri River, Kenslers Bend to Sioux City, which is a local erosion protection project.

Without objection, we will insert pages 70 and 71 of the justifications in the record at this time.

(The matter referred to follows:)

MISSOURI RIVER, KENSLERS BEND, NEBR., TO SIOUX CITY, IOWA (Continuing)

Location.—Local erosion protection along the Missouri River from the vicinity of Miners Bend (about 19 miles above Sioux City) to the combination bridge at Sioux City, Iowa.

Authorization.—1941 and 1948 Flood Control Acts.

Benefit/cost ratio.—1.37 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$10,700,000	
Estimated local cash contributions	0	
Estimated project cost	10,700,000	
Appropriations to June 30, 1954	4,288,000	
Appropriations for fiscal year 1955	600,000	
Appropriations to date	4,888,000	46
Appropriations requested for fiscal year 1956	600,000	51
Balance to complete after fiscal year 1956	5,212,000	

PHYSICAL DATA

Bank stabilization.—Construction of dikes, revetment and channel improvement for prevention of bank erosion.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Bank stabilization:		
Dikes and revetments	41	June 1960.
Pilot canal	0	May 1959.
Entire project	40	June 1960.

JUSTIFICATION

The project will protect an area of 55,884 acres from bank erosion by the Missouri River, including agricultural land, lake resorts at McCook Lake and Crystal Lake, industrial areas and the municipalities of Sioux City, Iowa, South Sioux City, Nebr., and North Sioux City, S. Dak. Erosion control benefits estimated at $1,530,000 have accumulated on the work already in place since start of work on the project in 1946. Average annual benefits for the project are estimated at $726,000. Completion of the project at an early date is necessary to eliminate severe bank erosion and prevent loss of the work in place, which has a value of $4,337,100.

Fiscal year 1956.—The requested amount of $600,000 will be applied to:

Continue construction necessary to prevent bank erosion in the Miners Bend area	$450,000
Continue construction in the Kenslers Bend-Sioux City area	150,000
Total	600,000

The amount of $600,000 for fiscal year 1956 is required to continue construction of stabilization structures necessary to prevent the continued loss of agricultural lands in the Miners Bend area and to reduce the potential threat of destruction of the stabilization works downstream therefrom with the resultant threat to the McCook Lake area, and to initiate construction to correct adverse flow conditions at the lower end of the project which are causing a direct impingement of the current against the bank adjacent to Gordon Drive (U. S. Highway No. 77).

Mr. RILEY. I notice that your request is for $600,000 and that the appropriations to date total $4,888,000. Can you tell us, please, what the present status of the work is and what your monetary situation will be at the end of the fiscal year?

General POTTER. With the funds requested for appropriation, the work will be approximately 51 percent complete in both Kenslers and Miners Bends. We have done most of our work in the past in the lower reaches of this project. However, due to the very unsatisfactory conditions existing in the upper bend, the large part of last year's appropriation was put at the upper end of this project. We would propose that the largest part of this money, the $600,000, would be put into continuing the work at the upper end as indicated on the photograph before the committee.

The green [indicating] indicates where we have started work this year in directing the river against the right bank. We would propose that this money be used to continue that work as shown in red, plus a small amount just above Sioux City, at the mouth of the big Sioux River.

The status of funds, on March 31, the unobligated balance, $49,430. The unexpended balance, $446,237. On June 30, the latest estimate for obligations and expenditures is zero.

RATE OF CONSTRUCTION

Mr. RILEY. We have taken a very grave calculated risk in stretching this work out over as long a period as we have in this particular instance.

General POTTER. Sir, there is just about $5 million left on this job and it has been going ahead extremely slow. Because of that, we are taking the minimum chance we can by starting work at the upper end but the length of time between now and when we tie in into the works in Kenslers Bend will determine whether we lose some of the works in Kenslers Bend.

As you saw there at McCook Lake, sir, we have extensive works in that area. Their success depends upon our keeping the river channeled into those works. If the point above those works is eroded, prior to the time we get to it, we stand a great chance of losing some of those works in the McCook Lake area. I have a strip map of this entire reach, sir, if you care to look at it.

Mr. RILEY. I was particular concerned about the practical engineering features of the case, whether or not we were taking too much of a calculated risk with the money we have already put in.

General POTTER. Off the record, please, sir.

(Discussion off the record.)

Mr. RILEY. How long will it take at the present rate of appropriation, to complete this Kenslers Bend project?

General POTTER. About 9 years, sir.

Mr. RILEY. If you had the money, how soon could you finish it under normal conditions?

General POTTER. Three years, sir.

Mr. RILEY. In your opinion, would that minimize the risk that we are taking with present structures and would it, to any great extent, limit the erosion which is going on in this particular stretch?

General POTTER. The sooner this work is completed, the sooner we can give assurance to the farmers on either side that their land will stay where it is. This project is a flood control project, specifically authorized for that purpose. The longer we go, the more land we are going to lose.

EFFECT OF GAVINS POINT

Mr. RILEY. When would the Gavins Point be closed?

General POTTER. Gavins Point will be closed on July 7 of this year and will then start to operate as a flow control structure downstream.

Mr. RILEY. Will that increase or decrease the average flow in the river?

General POTTER. The flow after the closure of Gavins Point will be maintained in the neighborhood of 30,000 cubic feet a second all during the summer months and up until November. That will be in the neighborhood of 1½ to 3 times the flow that would normally occur in those months.

Mr. RILEY. Will that increase the erosion?

General POTTER. That will greatly increase the average erosion during those months, but, of course, the lands will then be protected against high flows such as we had in the 1952 flood, sir.

Mr. RILEY. Would acceleration of appropriations save any money?

General POTTER. Yes, sir.

Mr. RILEY. If you completed this project in 3 years, could you give us some idea as to how much could be saved?

General POTTER. The cost of this project this year has gone up $241,700, largely due to price increases. Each year I will have to tell the committee that the remaining work has gone up due to price indices. The amount will be in that neighborhood, I presume, since the curve of construction costs has been going up steadily for several years.

(Discussion off the record.)

Mr. RILEY. That is nearly a quarter of a million dollars.

General POTTER. Very close, sir.

Mr. RILEY. It might be economical from several standpoints to speed up this particular construction.

General POTTER. If this increase stays the same for the period of construction that we see now, the project will cost $1 million more by the time it is finished.

Mr. MAGNUSON. General Potter, is there any other factor besides the rising price indices which would cause this project to require more money as it is stretched out longer?

General POTTER. The increase in cost, sir, also includes $87,000 for increased design and engineering. Each time the river changes its course in the uncontrolled area, sir, we have to get in and make a change in our plan for doing the work because the situation is different.

Mr. MAGNUSON. Is there also a likelihood or possibility of increased costs because of the loss of some of the installed work?

General POTTER. Yes, sir.

If we ever lose the works at the lower end, the price would go back to what it was at the beginning, 10 million plus.

Mr. MAGNUSON. What would you estimate you would require in the way of an annual appropriation in order to complete this in the shortest possible time that you, I believe, said was about 3 years if you had the money?

General POTTER. I believe that at least three-fourths of the money should be made available in the first 2 years with the remainder being made available in the last year.

Mr. MAGNUSON. The first 2 years being fiscal 1956 and 1957?

General POTTER. Yes, sir.

Mr. MAGNUSON. That would be $1¾ million or $2 million dollars a year.

General POTTER. In the neighborhood of 1¾ to 2 the first 2 years and a million the last year.

Mr. MAGNUSON. In response to a question of the chairman, you described the effect of the closure of Gavins Point when it is closed on July 7. You say there would be a controlled flow up until November.

General POTTER. That's right.

Mr. MAGNUSON. What happens after that?

General POTTER. The flow is cut down so we maintain the minimum flows necessary for municipal, industrial, and normal water use downstream.

Mr. MAGNUSON. The danger of damage is reduced in the winter months?

General POTTER. Yes, sir.

Mr. MAGNUSON. That is all, Mr. Chairman.

Mr. DAVIS. I wish you would give us a little lesson in hydraulics right about now, if you would, and I ask that because I notice in your current fiscal year, and in the 1956 fiscal year you contemplate putting in the dikes and the revetments. Tell us a little about the timing of what happens there. After you get the revetments done on the 1955 fiscal year, then what is going to happen downstream?

General POTTER. Sir, the upper dikes shown direct the water against the right bank of the river. If those revetments shown in green and red were not put in at the same time, then we would be in effect directing a hose against that bank—against that highly erodable land on the right bank. The revetment that is put in there is to protect that bank and put the river back into a sinuous channel that it will insist on having. You cannot put this river in a straight channel, logically; but the art of river engineering is the art of putting a river in a sinuous channel, a natural channel, and you do that by directing it from side to side and protect the banks against which you direct it by revetments as shown.

The lower end, Mr. Davis, in the red, is the structure that is putting it back over onto the other side of the river and on the other side we will then have to provide revetments to change it again into a sinuous channel.

Mr. DAVIS. Tell us a little bit about the timing there. You have some dikes indicated there for the 1956 fiscal year?

General POTTER. Yes, sir.

Mr. DAVIS. You put in the dikes, wait for the silt to fill them up and then put in your revetment?

General POTTER. No, sir; from the end of the green, we would start out into the river driving pile dike clusters. The river in the meantime would start to erode that silt-laden channel that you see there. The structures, the pile clusters would be carried ahead just fast enough to assure that more and more of the river was put into that rather shallow channel and increase its erosive effect. As soon as that direction is well changed, we start back again at the beginning of the red and fill in those pile clusters with rock. That rock, then, causes more of the flow to go down the channel. There is less to leak through the dikes and that becomes then the revetment behind which the silt builds up and makes new land, of course.

Eventually, when that silt is built all the way to the top, we complete the revetment and make an armored bank.

Mr. DAVIS. Tell us a little bit about the nature of that revetment. At the same time that you are speaking about the revetment to direct the current, you also indicate that there will be a silting behind them. Tell us how that happens.

General POTTER. The water in going through the dike, loses some of its velocity. It slows down. When it slows down, it drops out the heaviest particles of the silt that it has been carrying. If it ever comes to a dead stop, of course, it will drop the fine particles.

Mr. DAVIS. Those, then, are at no time a solid, continuous structure?

General POTTER. No, sir; when they first go in, the clusters of three piles each are about 10 feet apart. They are like a sieve. Then when we put the rock in, the first rock is put in to about 3 feet below the level of the river, so the water coming over the top continues to carry

its silt. When the maximum amount of silt has been gained, we come back and build that rock up to above the top of the water level to protect it against ice floes.

Mr. DAVIS. Then it becomes substantially a solid surface?

General POTTER. Yes, sir.

Mr. DAVIS. Are there not a number of cases where you have put only the dikes in, and waited maybe a year or a couple of years for the silting to take up before you make up the revetment?

General POTTER. We used to do that, Mr. Davis, and the theory is fine, but we lost too many dikes by ice. A good example of that is the ice run this year at St. Joe where the rock was only built about up to the lowest level, 3 feet below the water surface. We had one of the greatest ice runs we ever had at St. Joe this year and we lost a lot of piles above that rock surface. Fortunately, we can go in in that place and build the rock up without the core of piles since we do have the river controlled.

(Discussion off the record.)

Mr. DAVIS. I want to be sure that the record is clear on this point. You spoke of a greater average erosion. That is to be confined only to those summer months and certainly should not be interpreted as being a greater annual erosion as a result of your having Gavins Point.

General POTTER. I think it would be better if I make that absolutely clear. The lands along the Missouri have been subject to these erosive actions in the past. The high spring floods of which frequently there are two, cause a terrific attack on the land because of the high velocity of the water. In the summer the flows would go down to as low as 10,000 cubic feet per second or lower. Of course, that erosive action is not great because frequently the water is not even against the bank. Under present conditions, with Gavins Point closed there will, of course, be no high floods with that enormous erosive action. But there will be a continuous higher river in the summer months which will cause more erosion during those particular months.

We are, at the present time, below Garrison, below Fort Randall and we will be below Gavins Point, putting out survey stakes so that we can make an analysis as to the rate of erosion under the controlled river situation that we will have and that can be reported to this committee annually starting in about 3 years, I would say.

Mr. RILEY. The next project is Havre, Mont.

HAVRE, MONT.

Mr. RILEY. This is a local protection project for which you are asking $600,000. It shows a cost-benefit ratio of 3.35 to 1. What proportion of the work will be completed, General, by this appropriation?

General POTTER. 100 percent, sir. The project will be completed.

Mr. RILEY. This is the final bit. Is this a project that takes local participation?

General POTTER. Yes, sir. There is large local cooperation in this because the project involves so much use of land for small reservoirs, channels, and levees.

Mr. RILEY. Have they fulfilled all the local participation requirements?

General POTTER. It is one of the finest examples of people being behind a project that I have ever seen, sir. They have, however, run into a little difficulty this year. We thought that the final contract would be awarded in April. It will not be awarded until later in May because in making the surveys of the land for the Havre levee they found mistakes in original landmarks and titles. All of the property lines were about 20 or 30 feet away from where they should have been. Those had to all be corrected by the courts before they could buy the land. They have entered into it not only willingly but with a great deal of initiative and are doing everything they can to expedite the gaining of the final real estate.

Mr. RILEY. That is very gratifying where you have cooperation of that nature.

Is there any contingency reserve in the money which has been appropriated for the project?

General POTTER. Yes; there are still contingencies in this, sir—$170,800 for the overall project. The committee will remember that the Bull Hook unit is still under construction and not completed.

Mr. RILEY. Is there a possibility that that might be saved, some of it?

General POTTER. I would assume that some of it might be saved, sir. Contingencies, in our experience, always do arise in construction projects and a part or major part of this might be so used. But we always do tell the committee what the final cost of a unit is and it is very easy to find out what has been left over.

Mr. RILEY. We shall insert pages 76 through 78 of the justifications in the record at this point.

(The pages referred to are as follows:)

HAVRE, MONT. (CONTINUING)

Location.—Local protection for Havre, Mont. (county seat of Hill County), located in north-central Montana, along Milk River and its tributary Bull Hook Creek, at a point 402 miles upstream from the confluence of Milk River with Missouri River.

Authorization.—1944 Flood Control Act.

Benefit/cost ratio.—3.35 to 1.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$1,950,000	
Estimated local cash contributions	0	
Estimated project cost	1,950,000	
Appropriations to June 30, 1954	850,000	
Appropriation for fiscal year 1955	500,000	
Appropriations to date	1,350,000	69
Appropriations requested for fiscal year 1956	600,000	100
Balance to complete after fiscal year 1956	0	

PHYSICAL DATA

	Feet
Channel (Bull Hook unit):	
Length, Scott Coulee diversion channel	3,950
Length, Bull Hook Dam spillway and discharge channel	9,180
Length, lower diversion dam spillway (Milk River unit)	800
Length, Milk River cutoff channel	700
Levees (Milk River unit):	
Average height	10
Length	20,580

Pumping plants: 1 pumping plant with interior drainage ditches, and pressure outfall conduits, 1 sanitary sewage pumping station including a sewage and drainage manhole with sluice gates, and a gated water inlet.

Relief wells: 7 wells (8-inch bore) Bull Hook unit; 18 wells (6-inch bore) Milk River unit.

Floodway control and diversion structures (Bull Hook unit)

Item	Scott Coulee Dam	Bull Hook Dam	Lower Diversion Dam
Height above streambed ..... feet	53	83	60
Crest length ..... do	1,700	1,815	490
Storage capacity ..... acre-feet		[1] 10,500	800
Spillway capacity ..... cubic feet per second		25,200	24,900

[1] Total for both Bull Hook and Scott Coulee Dams.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Channels:		
Bull Hook unit	82	June 1955.
Milk River unit	0	December 1955.
Floodway control and diversion structures (Bull Hook unit)	63	June 1955.
Levees	0	June 1956.
Pumping plant	0	Do.
Entire project	39	Do.

JUSTIFICATION

The project will protect the principal industrial, business, and residential areas of Havre, Mont., against recurring floods on Bull Hook Creek and Milk River. The largest flood of record, on Bull Hook Creek at Havre occurred in June 1938, inflicting damages estimated at $360,000, and minor flooding in June 1953 caused damages estimates at $93,500. Flooding on the Milk River at Havre in April 1952 caused damages estimated at $448,000 and lesser flooding in May and June 1953 inflicted damages estimated at $86,700. Recurrence of the 1938 flood on Bull Hook Creek under present conditions of development along its banks would cause damages estimated at $2,990,000, and a flood of the 1952 magnitude on the Milk River would cause an estimated $469,000 damages. Annual flood control benefits for the project are estimated at $259,800. The city of Havre and Hill County Board of Commissioners have furnished assurances that they will provide all necessary local cooperation to comply with all requirements for the authorized project. All lands required for the project have been acquired.

Fiscal year 1956.—The requested amount of $600,000 will be applied to:

Complete channel improvement, Milk River unit	$9,200
Complete levee construction, Milk River unit	438,900
Complete construction of pumping plants, Milk River unit	72,800
Complete construction of relief wells, Milk River unit	36,500
Supervision and administration	42,600
Total	600,000

Funds requested for fiscal year 1956 will complete the project.

COST OF PROJECT

Mr. DAVIS. I have a recollection somewhere in the past, General, that when we first looked at this project we expected a couple of appropriations in the neighborhood of $600,000 a year would clean this up. Has there been a substantial increase in the estimated cost of this project since we looked at it about 2 or 3 years ago?

General POTTER. No, sir. As you will remember, sir, we got very good bids on the Bull Hook unit and I explained last year that since the authorization, North Havre had built up and a levee was required over there. That was added to the project, but with the savings we made on the Bull Hook unit the price went up, I believe, but little.

As the picture shows, the Bull Hook unit, its correcting channels and diversion channels into the spillway area in the Missouri, are under contract and I think about 70 percent finished. We have under advertisement at the present time the levees shown in red which will be completed with the moneys asked for this year. I would like to tell the committee that those little dams up there have a capacity of 10,500 acre-feet, very small capacity. Within the last month we had terrific snow that put 2,000 acre-feet in those little dams. Had it not been for them, there would have been a flood in Havre due to the runoff from the arroyos. They are quite pleased out there with the way they worked on their first flood and before they are finished.

Mr. MAGNUSON. Where is North Havre on that map?

General POTTER. On this side of the Milk River as being pointed out.

(Discussion off the record.)

Mr. DAVIS. This project is at the stage where you can obligate money just about as fast as you can get it?

General POTTER. Yes, sir.

Mr. PHILLIPS. What is the material used in the construction of the levee?

General POTTER. Earth. Roll fill. The green is underway and the red is proposed.

GREYBULL, WYO.

Mr. RILEY. The next project is at Greybull, Wyo. Local protection for the town of Greybull. Without objection, we will insert pages 83 and 84.

(The matter referred to follows:)

GREYBULL, WYO. (NEW)

Location.—Local protection for Greybull, Wyo., located in Big Horn County in northern Wyoming, along Bighorn River 183 miles above its confluence with the Yellowstone River.

Authorization.—Flood Control Act of 1950.

Benefit/cost ratio.—2.03 to 1.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$743,000	
Estimated local cash contributions	0	
Estimated project cost	743,000	
Appropriation to June 30, 1954	0	
Appropriation to fiscal year 1955	40,000	
Appropriations to date	40,000	5
Appropriations requested for fiscal year 1956	300,000	46
Balance to complete after fiscal year 1956	403,000	

PHYSICAL DATA

Levees:	*Feet*
Average height	10
Length	12,300

Status Jan. 1, 1955

	Percent	Completion schedule
Levees	0	June 1957.

JUSTIFICATION

The project will provide a high degree of flood protection to this town of 2,500 people. Under existing conditions virtually all of the business establishments, residences, public buildings, streets and roads, public utilities and facilities of an important north-south railroad are subject to flood damage. Greybull has suffered extreme flood damage from 5 major floods on the Bighorn River since 1887 as well as lesser damage from numerous minor floods. Ice jams caused 4 of the major floods including the most damaging of record in 1929. The major open water flood occurred in 1923 when approximately half the town was inundated. Estimated damages inflicted by the 1929 and 1923 flood are $204,300 and $50,000 respectively. It is estimated that a flood flow approaching the design flood would cause property damage of nearly $900,000. Since 1940 the expansion of the town of Greybull, and improvement of railroad facilities and public utilities has greatly increased the need for adequate flood protection to the area subject to flooding. In addition, important intangible benefits would result from construction of the project through elimination of the hazard to loss of life and improvement of sanitation. Local interests are actively interested in the construction of the project and have provided informal assurances that all required local cooperation will be furnished. Annual flood control benefits for the project are estimated at $59,600.

Fiscal year 1956.—The requested amount of $300,000 will be applied to:

Initiate construction of levees and appurtenant facilities	$270,300
Engineering and design	10,100
Supervision and administration	19,600
Total	300,000

Funds requested for fiscal year 1956 will permit the completion of plans and specifications and initiation of construction of levees and appurtenant facilities for flood protection of the town. Initiation of construction in fiscal year 1956 will permit scheduling of work so as to effect completion in fiscal year 1957.

Mr. RILEY. You are asking for $743,000. Is that a new project?

General POTTER. The only new start in the Missouri River Division, Mr. Chairman.

Mr. RILEY. Total cost, I believe, is $743,000 and you are asking for $300,000. Is that right?

General POTTER. Yes, sir.

Mr. RILEY. Is there local participation in this?

General POTTER. The furnishing of the lands and the right-of-way and again the maintenance of the structure after it is completed.

Mr. RILEY. What about your local cooperation? Are they cooperating as well up there as at Havre, Mont.?

General POTTER. The local government has said that they are behind the project and they are advancing into the necessary work to produce the lands and rights-of-way. I know of no objection to the project. Last year we got $40,000 for the initial plans and specifications and we worked very closely with the community.

Mr. RILEY. What is the status of the design? Has it been completed enough to show whether or not there is going to be any change in the estimated cost?

General POTTER. I would hate to say at this time. The design memorandum is just arriving in my office. The plans and specifications will be done in September. The reason for the rather small appropriation request compared to the size of the project is that we will get very little good out of this year's construction season. And the amount of money asked will enable the contractor to hit the project full speed next spring.

Mr. PHILLIPS. When will you be snowed in?

General POTTER. We won't be ready to advertise this until September. That means he won't be able to work very long this year. We rather doubt that he will do much more than get all set to hit it hard in the spring.

Mr. RILEY. I believe in this estimated-cost analysis you show a contingency of approximately $130,000.

General POTTER. On a purely percentage basis the projects not having started, sir, that is the normal way it is done and if any of the contingencies are not used up they will be reported back at the end of the job.

Mr. DAVIS. This is purely local protection, for one community?

General POTTER. Yes, sir.

Mr. DAVIS. They built the city right down in the flood plain of the river?

General POTTER. As, I believe, about nine-tenths of our towns are.

Mr. PHILLIPS. It was customary in the early days of navigation.

General POTTER. And water supplies.

General ITSCHNER. And railroads.

General POTTER. There is one transcontinental railway going through this town.

Mr. DAVIS. No relocation of railroad involved in the project?

General POTTER. No, sir.

Mr. DAVIS. You would expect to get the balance of the funds next year and wind it up in 2 years?

General POTTER. I believe that would be our proposal to the Chief of Engineers, sir.

Mr. PHILLIPS. You mean you are going to ask for the $403,000 next year?

General POTTER. I believe so, sir. This will be let in one contract, Mr. Phillips, the whole job on a continuing basis.

Mr. DAVIS. How high is that levee?

General POTTER. About 10 feet, Mr. Davis.

Mr. DAVIS. All earth embankment?

General POTTER. Yes, sir. The local people must furnish the borrow areas from which the earth comes.

LOCAL CONTRIBUTION

Mr. PHILLIPS. General, this is more an accounting question on how you figure your accounts. In reply to Mr. Riley's questions you said there were local contributions of land and material but the record shows a zero and I find no cash contribution. When you set up all these contributions on your books, do we set them up only as to the actual Federal investment without regard to the value in real estate or cash contributions?

General POTTER. The in-lieu contributions are not shown.

Mr. PHILLIPS. On any of your work?

General POTTER. That is correct, sir. But if a cash contribution in dollars is required, then it is picked up. There are projects like that, Mr. Phillips.

Mr. PHILLIPS. What does your budget officer think of that?

General ITSCHNER. It is so difficult to evaluate the contribution.

Mr. PHILLIPS. How do you set up the cash contribution on your books? Do you set it up as part of the value of the project? Part of the investment in the project?

General POTTER. Yes, sir. If cash is required, the cash is turned over to the Government. It is taken up in the books.

Mr. PHILLIPS. Do you say, if they have given you $100,000, you say the estimated cost is $742,000, local contribution is $100,000, Federal cost $642,000?

General POTTER. Yes, sir.

Mr. JOHNSON. In our cost-benefit ratio they are taken into consideration.

GAVINS POINT RESERVOIR

Mr. RILEY. The next project is the Gavins Point Reservoir, in Nebraska and South Dakota.

This is a multipurpose project, including power. Without objection, we will insert pages 88 through 90 of the justifications in the record.

(The matter referred to follows:)

GAVINS POINT RESERVOIR, NEBRASKA AND SOUTH DAKOTA (CONTINUING)

Location.—Mile 846.3 Missouri River; in Cedar County, Nebr. and Yankton County, S. Dak.; about 4 miles west of Yankton, S. Dak.; and 78 miles downstream from Fort Randall project.

Authorization.—1944 Flood Control Act.

Benefit cost ratio.—1.36 to 1 when combined with Fort Randall.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$53,000,000	
Estimated local cash contributions	0	
Estimated project cost	53,000,000	
Appropriations to June 30, 1954	20,681,000	
Appropriations for fiscal year 1955	11,000,000	
Appropriations to date	31,681,000	60
Appropriations requested for fiscal year 1956	13,950,000	86
Balance to complete after fiscal year 1956	7,369,000	

PHYSICAL DATA

Dam:
Type: Rolled fill earth embankment.
Height: 74 feet.
Length (exclusive of the spillway and powerhouse): 8,700 feet.
Spillway:
Type: Gate controlled, concrete ogee weir with stilling basin.
Capacity: 577,300 cubic feet per second.

Reservoir capacity:	*Acre-feet*
Exclusive flood control	65,000
Annual flood control and multiple use	100,000
Carryover multiple use	220,000
Inactive capacity	155,000
Total	540,000

Power installations:
Initial and ultimate: 3 units at 33,333 kilowatts; 100,000 kilowatts.
Presently planned: 3 units at 33,000 kilowatts; 100,000 kilowatts.
Nominal head: 48 feet.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Entire project	45	Entire project, June 1958.
Acquisition of land	26	Land acquisition, June 1957.
Relocations	0	Relocations, June 1958.
First stage construction including earthwork stage I, excavation for the powerhouse and spillway and construction of the south access road.	100	Dam closure, July 1955. Power on line: 1st unit, October 1956; 2d unit, February 1957; 3d unit, June 1957.
Second stage construction including earthwork stage II, powerhouse substructure, spillway and tailrace.	76	
Third stage construction including powerhouse superstructure and switchyard, installation of power equipment and reservoir clearing.	0	
Procurement of intake gates	63	
Procurement of generators	9	
Procurement of turbines	38	
Procurement of transformers	52	

JUSTIFICATION

General.—The Gavins Point Reservoir will be operated as a unit of the comprehensive plan for flood control, navigation, conservation and other purposes in the Missouri River Basin. The comprehensive plan will protect Sioux City and Council Bluffs, Iowa; Omaha, Nebr.; and the Kansas Citys, Kans., and Mo.; as well as other urban and rural areas in the valley below the dams from severe floods such as those which occurred in 1844, 1881, 1903, 1909, 1915, 1927, 1935, 1942, 1943, 1944, 1945, 1947, 1949, 1950, 1951, and the record-breaking flood of 1952, and from smaller floods originating upstream which occur practically every year. Flood damages along the main stem of the Missouri River between the dam site and the mouth of the river, from 1942 to 1953, inclusive, are estimated

at approximately $550 million. The plan will afford flood protection to 1,800,000 acres of land subject to flooding between Sioux City and the mouth of the river. The primary purpose of the authorized Gavins Point Dam and Reservoir is to furnish reregulatory pondage to iron out daily and weekly fluctuations in water releases from the Fort Randall project to conform to downstream restrictions. In order to utilize the full hydroelectric power potential of Fort Randall, it will be necessary to fluctuate the power generation rate and consequently the water discharge from the powerplant to fit the power potentially available to the actual load demands. Unrestricted peaking operations at Fort Randall, which are necessary to obtain the maximum value from power generation, would cause serious ice jam hazards to downstream reaches of the river if Gavins Point were not constructed. The Bureau of Reclamation has determined that unrestricted peaking operations would be desirable as soon as the powerplant at Fort Randall is placed in operation. The power installation at Gavins Point will be connected to all major systems in Nebraska, South Dakota, and North Dakota and through interconnections with other systems will be able to increase the power supply of such important distant centers as Minneapolis, St. Paul, Des Moines, Kansas City, and Wichita. This installation of 100,000 kilowatts will be one of the largest in the area to be served and will provide power for increased industrial development. Based on unit values estimated by the Federal Power Commission, the average value of the power to be generated at Gavins Point will be $2,383,000. Additional important benefits will result from the controlling of floods originating in the drainage basin between Fort Randall and Gavins Point; more complete control of flows for navigation project, and other beneficial downstream purposes; and from fish and wildlife and recreational developments.

Fiscal year 1956.—The requested amount of $13,950,000 will be applied to:

Continue acquisition of lands	$500,000
Continue relocations	348,100
Continue reservoir clearing and erosion control	501,300
Continue and essentially complete dam	3,344,100
Continue construction of powerhouse, switchyard, and installation of equipment	3,521,200
Continue procurement of turbines, generators, transformers, gates, and other operating equipment	4,033,200
Initiate construction of reservoir approach roads	100,000
Initiate construction of recreation facilities	99,500
Initiate and complete permanent utilities	42,600
Continue procurement of permanent operating equipment	162,000
Operation and maintenance during construction and construction facilities	150,000
Engineering and design	350,000
Supervision and administration	798,000
Total	13,950,000

With the funds requested for fiscal year 1956, diversion of the river and construction of the dam will be completed on schedule. By July 1, 1955, the powerhouse will be advanced to a stage of construction where it will be necessary to continue operations at currently scheduled rates in order to avoid increased construction costs and to assure that the first power unit will be placed on the line in October 1956. Subsequent units are now scheduled to be placed on the line in February and June of 1957.

Mr. RILEY. I note that you are asking this year for $13,950,000. Am I correct in reading that this will complete the project to about 86 percent?

General POTTER. Yes, sir.

Mr. RILEY. What is the money status at this time? What is the unobligated balance and what do you expect the unobligated balances to be on the 30th of June?

General POTTER. Unobligated balance, March 31, $969,825. The unexpended balance, $5,023,148.

On June 30, we will have all moneys obligated and expended.

Mr. PHILLIPS. Are you reading from page 90?

General POTTER. I am reading from my own sheet but the same information should be on there. The March 31 data is, of course, from our fiscal records in the Division.

Mr. RILEY. Have they had unusually good working conditions at Gavins Point this year or would you describe the conditions as being normal?

General POTTER. I would say the condition was normal except for about a month when the weather was exceptionally cold. In order to provide for all-winter concreting, which would be necessary to complete his job, the first contractor completely housed in the spillway powerhouse area with a fabricated structure covered by panels. He did work all winter at full speed.

REDUCTION IN COST OF PROJECT

Mr. RILEY. Are there any changes in your estimates since your last report to the committee?

General POTTER. Mr. Chairman, I have been waiting for this question for 3 years.

The cost at Gavins Point has gone down $7,055,000.

Mr. RILEY. To what do you attribute, General, this saving in the estimated cost of this project?

General POTTER. A part of it comes from the engineering, sir. We switched the location of the powerhouse and the spillway. Mr. Johnson will point that out. The savings of excavation and size of the structures over the definite project plans; the land requirements have been reduced from 40,000 to 36,000 acres as I reported last year. We reduced the scope of the clearing; at one time it was proposed to entirely clear this reservoir, but in working out what both States desired, South Dakota and Nebraska, a compromise was reached which resulted in a savings of close to $1 million. Favorable bids have reduced the price $1,900,000 and the estimated cost of supervision and administration was reduced by $1,230,000.

There have been some increases that we still keep in the estimate concerning the protection of the city—the city of Niobrara—where we have not yet come up with a plan.

Mr. RILEY. That is a very gratifying report.

This request for approximately $14 million for next year, is that based on your actual experience in bids in this area, the latest bids?

General POTTER. Mr. Riley, I believe that the amounts we have in here are the minimum amounts to keep our going contracts on the road. Every major contract on this job is now let except one for the pressure relief—I believe that may be let, too. Some road relocations just under $1 million which will be let in May. But every other major contract has been let at the present time.

GENERATION SCHEDULE

Mr. RILEY. You haven't had any delay in getting in your power-generating equipment?

General POTTER. We believe it will come on the line at its scheduled time, October 1956; yes, sir.

Mr. RILEY. You do not at this time anticipate any delay?

General POTTER. No, sir.

Mr. RILEY. Could you insert in the record a table showing the date on which the various generating units are scheduled to come on the line?

General POTTER. For this project?

Mr. RILEY. Yes.

General POTTER. October 1956, 33,333 kilowatts. The next generator of the same size, February 1957. The last generator of the same size in June 1957, a total of 100,000 kilowatts.

LAND-TAKING PROGRAM

Mr. RILEY. Are you having any opposition or criticism on your land-taking program?

General POTTER. We are getting it from both sides, sir. The land procurement for this project came right at the time that the new real-estate policy was initiated. Consequently, the people in that area knew what taking was proposed under the old taking policy. Those who were in favor of extensive recreational development were very happy with that old taking line. The landowners were unhappy with it. In changing to the new policy, the recreation people have become very unhappy; the landowners are happy or happier but not entirely satisfied at the present time. Both groups are about equally divided, I would say.

Mr. DAVIS. Is it over the line in Nebraska?

General POTTER. It is in both States.

Mr. RILEY. The present policy, General, I believe, is to take the lands only to the high water mark?

General POTTER. To the 5-year flood height.

Mr. RILEY. Five-year flood height. The policy heretofore has been to——

General POTTER. To take to the top of the maximum pool plus enough land to get to the water and provide for maintenance of the reservoir areas.

Mr. RILEY. So that now landowners go right down to the lake, so to speak.

General POTTER. In many cases, close to it.

Mr. RILEY. They are close to the lake and they develop their own recreational facilities instead of the Government leasing them or operating them.

General POTTER. What is happening, sir, is that both States have an interest in preserving that marvelous recreational facility that this reservoir with its constant pool will provide. I know the States would like to buy the land themselves. Whether they will be financially able to do it or not, I don't know.

On the other hand, there have been sales of land already to people who desire to build facilities; cottages and so on.

Mr. RILEY. The local landowners, then, have considerable enhancement in the value of their property as a result of being on the lake, in some instances at least.

General POTTER. I only know of one example so far of a landowner that sold some of his land, I believe, for $750 an acre. Its value is about $75.

BENEFIT-COST RATIO

Mr. RILEY. I notice the benefit-cost ratio has dropped from 1.57 to 1.36. Could you explain that for us?

General POTTER. That benefit-cost ratio is calculated in conjunction with Fort Randall of which this is really an engineering part. The reduction in the benefit-cost ratio is due to the fact, as I explained before, of going from the projected prices for benefits to current prices.

Mr. RILEY. I notice that the projected power benefits are based on a cost of about 2.9 mills. Is that the projected cost?

General POTTER. That will be the cost at the plant and will not include the cost of transmission or administration.

Mr. RILEY. Would this project have to carry any costs of irrigation?

General POTTER. No, sir; there is no irrigation in conjunction with this project.

INCLUSION OF LOSS OF TAXES ON POWERPLANTS BUILT BY THE FEDERAL GOVERNMENT IN BENEFIT-COST RATIOS

Mr. Riley, if I could add to my explanation on the change of the benefit-cost ratio, this year we have had to include taxes foregone among the annual charges. In this particular project $218,000 was added to the charges which was the major reason why this project reduced in benefit-cost ratio.

Mr. RILEY. On an annual basis.

(Discussion off the record.)

Mr. RILEY. What was the term you used?

General POTTER. Taxes foregone.

Mr. RILEY. I am a little bit hazy as to what you mean by "taxes foregone." Would you explain that to the committee, please?

General POTTER. Present policy is to charge a project with the taxes that would have accrued to the Federal and local governments had this project been built by private interests and been taxed in the normal way that business is taxed.

Mr. RILEY. How long are these costs added to the cost of the project?

General POTTER. Annually, sir, on an annual basis.

Mr. RILEY. Is that based on the cost of producing the same amount of energy by steam or something of that kind, or is it the amount of energy produced by the hydroelectric development?

General ITSCHNER. It is based upon the cost of producing the same amount of power by private capital, in this case. It might be steam, if that were the most likely alternative to the Federal hydroproject.

Mr. RILEY. But in projects of this nature you are charged the estimated taxes which would have accrued had this particular plant been built by private interests, is that right?

General POTTER. Of the same capacity, sir.

General ITSCHNER. In this particular case, the alternative which was used was a privately constructed steam plant.

Mr. RILEY. Thank you. That item, then, adds to the cost of operation of the plant?

General POTTER. It adds to the annual charges and is one of the elements of the benefit to cost ratio, sir.

Mr. RILEY. No such figure is added in reclamation projects, is there?

General POTTER. I don't know, sir; it is a policy of the Bureau of the Budget, though.

Mr. RILEY. It is a Bureau of the Budget policy?

General ITSCHNER. It is a Bureau of the Budget policy. Whether it applies to Bureau of Reclamation projects or not, I am unable to say.

(Discussion off the record.)

Mr. CROSTHWAIT. The item of evaluating the losses of taxes on power plants built by the Federal Government is included in the planning reports in determining the benefit-cost ratios in accordance with instructions contained in Bureau of the Budget Circular A–47.

Mr. RILEY. Projects constructed by the Bureau of Reclamation under the Department of the Interior as well as those constructed by the engineers?

Mr. CROSTHWAIT. Yes.

Mr. MAGNUSON. With respect to the charging of taxes foregone to a project of this kind, there wouldn't have been any flood-control benefit if this were a private project, would there?

General POTTER. The taxes foregone apply only to power plants, Mr. Magnuson.

Mr. CROSTHWAIT. Only to that part of the cost.

Mr. MAGNUSON. And this charge is based upon a hypothetical situation where the Government would have built the dam and private interests would have built the powerhouse.

General POTTER. In this particular case, we have used a steam plant of the same capacity as the most logical alternates or to calculate what the taxes would have been.

Mr. MAGNUSON. Will the power revenues be required to repay this item of taxes foregone?

General POTTER. No, sir.

Mr. MAGNUSON. That is used only in computing the benefit-cost ratio.

General POTTER. Yes, sir.

Mr. MAGNUSON. What is the nature of the land which will be flooded by the pool of this project?

General POTTER. It is largely bottom land in this reservoir, sir. The river in this particular stretch is bordered generally by bluffs in the neighborhood of 30 to 60 feet high. So, a large part of our taking is bottom land, farm land, with an average value of about $74, of all types.

Mr. MAGNUSON. It is largely in Nebraska or entirely in Nebraska?

General POTTER. It is on the boundary. The river is the boundary, sir, between Nebraska and South Dakota. The south shore of the reservoir is in Nebraska and the north shore in North Dakota.

Mr. RILEY. How far will the water back up?

General POTTER. To Niobrara.

Mr. RILEY. How far is that?

General POTTER. 37 miles.

Mr. MAGNUSON. Do I understand that this consideration of the factor of taxes foregone is now being computed in all Corps of Engineers projects?

General POTTER. Yes, sir.

Mr. MAGNUSON. With respect to benefit-cost ratio?

General POTTER. Yes, sir.

REDUCTION IN CONSTRUCTION COSTS BELOW ESTIMATED COSTS

Mr. RILEY. You held out about a million dollars on us last year? Last year you promised you were going to save $8 million for us this year.

General POTTER. Did I say about eight? I can't promise what the next man is going to do, sir, but I think you might get a little more out of this.

Mr. DAVIS. That reduction you spoke of in some of these items reflects an experience we had here within the last month in which I believe the Air Force people told us us that their bids were running on an average of 12 to 15 percent less for construction than what they had anticipated when they presented their budget last year.

General POTTER. Generally in our military construction program, and we have one which is the second or third largest program in the corps, our experience is that we are making a little money on our estimates.

Mr. DAVIS. That isn't true to anything like that extent in this kind of heavy construction?

General POTTER. No, sir.

Mr. DAVIS. In that connection, however, General, inasmuch as apparently we are not going to get an overall presentation, at least we haven't had one yet with respect to the overall experience that you have had in the course of the year, I believe you mentioned that you anticipated having $47 million at the end of the fiscal year which could be called savings from your construction estimates that were presented last year.

General ITSCHNER. Between $46 and $47 million in savings in the estimated costs. That is the amount that the estimates are reduced in this year's budget presentation overall for the entire country below what they were last year. In other words, the projects that we have in this particular budget submission will cost, according to this year's estimate, between $46 million and $47 million less than they were expected to last year.

Mr. DAVIS. I see what you mean. That doesn't mean you haven't been able to reduce your obligations during the current fiscal year by that amount. It simply means that you have been able to reduce your estimated total Federal cost on the projects included in his budget by that much.

General ITSCHNER. That's correct. We anticipate that by the time the projects in the budget are finished that amount of savings will be realized.

Mr. DAVIS. We don't have anything like that amount of money cash in hand that can be applied against going projects.

General ITSCHNER. No, sir.

REREGULATING DAM

Mr. DAVIS. For the record, General, would you give us an explanation of the function and the operation of the reregulating dam?

General POTTER. Gavins Point is a true reregulating dam just like those that exist below similar structures on the Willamette River. It happens to be in this case about 60 miles downstream from the structure which it reregulates. Fort Randall operates as a peaking plant

with the generators going on and off the line as the Department of the Interior demands the load. That means that water flows out of the turbines at Fort Randall might vary between 10,000 cubic feet a second and within an hour be up as high as 45 or 50,000 cubic feet a second. Were surges such as that to be sent downriver, the erosive action all the way down would be extensive. The reregulating dam ponds those surges and releases the water steadily through its generators, maintaining a constant flow as required downstream.

PROTECTION AGAINST ICE FORMATION

Mr. DAVIS. In the justifications is not mentioned the function which Gavins Point will perform with respect to the ice formations. Will you explain that for us?

General POTTER. Were these surges during the winter to be sent downstream during the ice-forming periods of the winter, the ice would be broken up and ice jams could well form, would probably form, all the way down to at least St. Joe. I don't mean to say that we don't get ice jams at the present time. We do. But were these ice jams to be formed more regularly we would have considerable flooding all the way down the river at east as far as St. Joe. An ice jam is in effect a dam in the river, and this last winter we had one that caused the water behind it to rise as much as 10 feet. In the past, some of the severe floods of parts of the valley have been caused by ice jams. The main upstream reservoirs, of course, Mr. Davis, will now impound all the upriver ice. That ice will not be a problem downstream.

REGULATION OF WATER LEVEL

Mr. DAVIS. Explain how you regulate the level of the water in the river in order to provide for the flowage during the winter months.

General POTTER. The demand for water on the river downstream and especially past the larger communities is based on an amount that has been calculated by ourselves and the Public Health Service as the minimum requirements for the livelihood of those communities and areas during the winter months. That amount is roughly 10,000 cubic feet a second at Omaha and 12,000, I believe, at Kansas City. The larger demand in the summer, of course, stems from the fact that there are so many additional water uses in the summer, such as watering lawns, air conditioning, cooling purposes, washing streets, and all that sort of business.

The demand in the summer is, of course, greater but is not as great as the demands for navigation.

(Discussion off the record.)

POWER PRODUCTION

Mr. DAVIS. What do you mean by dependable peaking capacity when you are dealing with the power output of these various dams?

General POTTER. The dependable peaking capacity in layman's language is the capacity that you will have water for to run generators on a peaking cycle rather than on a continuous powerflow cycle.

Mr. DAVIS. What, if any relationship, exists between dependable peaking capacity and firm power availability?

General POTTER. Firm power could be considered a steady load that the water would let this structure generate. If you have enough water,

let's say, for 150,000 kilowatts generation day in and day out, that is the steady power capacity. You can take that same amount of water and generate for half the time during the time of greatest load and get the same number of kilowatt-hours, but at a higher rate.

Mr. DAVIS. They are both measured in terms of kilowatt-hours?

General POTTER. Kilowatts, sir.

Mr. DAVIS. Now, in any one given power source, you first of all have a maximum capacity for the equipment itself. Then if you have a given amount of water that you can send through the generators in a 24-hour period, would your dependable peaking capacity be the total that you could generate by running your equipment at practically its maximum capacity multiplied by the time you would have the water to do that? Would that, roughly speaking, be what you call your dependable peaking capacity for that installation?

General ITSCHNER. Not multiplying by time because that gives you kilowatt-hours. Capacity is in terms of kilowatts only.

Dependable peaking capacity is actually not too good a term. If you said "dependable capacity," it would be a better phrase.

Mr. DAVIS. I am referring to the hearings of last year, to a statement furnished by the Corps of Engineers in which they list the various projects on the Missouri River and list under one heading "dependable Peaking Capacity, Kilowatts." I am trying to find out what that means in terms of power generation and its relation to firm power. When you refer to me as a layman, that is completely correct. I am trying to get you experts to tell me.

General POTTER. We have a similar statement we though might be called for this year, sir. Could Mr. Wendell Johnson who prepared the statement or had to do with its preparation discuss it?

Mr. JOHNSON. The method in which we computed our dependable capacity was determined by the Federal Power Commission, the Bureau, and ourselves acting as a subcommittee of an interagency committee to prepare a report on power demand and supply in the Missouri Basin. Private power companies participated in that study. The definition which we used for dependable capacity was that peaking capability which we could get out of a powerplant at the head which existed at the end of four consecutive drought years.

Mr. DAVIS. Off the record.

(Discussion off the record.)

NIOBRARA RESERVOIR

Mr. DAVIS. Just one more question on this particular project. Last year you told us about a problem with respect to the Niobrara Reservoir. What about that?

General POTTER. The problem up there, sir, is one having to do with how much protection that community will need not only immediately but after some experience in aggradation out of the Niobrara River. The Niobrara River is a silt producer. When that river starts to dump its silt into the still waters in the upper end of the reservoir there may be a problem of protection that we may have to come before the committee to take care of. We think we know approximately what the answer is. We have made very extensive studies and we have one of the highest level consultants boards working on it that exists in the corps. We are not yet ready this year to come up with a definitive

answer. We are working very closely with the people in Niobrara on this matter.

Mr. PHILLIPS. Let me ask one question: You see this little sketch superimposed on the map? I can't, sitting here, make it fit into this project at all. Is it supposed to be this powerhouse?

Mr. JOHNSON. That is the switchyard there. This is the powerhouse here.

Mr. PHILLIPS. Now, over here, I take it, that you are running an embankment as really a dam straight across this river?

General POTTER. Yes, it is as far as the picture shows right now. apparently the flow is this way. It would be at that point before the bend comes, approximately a low point. We are building the dam out here.

Mr. PHILLIPS. Is it going to wash right out?

General POTTER. That bank is protected where your finger is.

Mr. PHILLIPS. Below makes no difference. Above it looks as if it is going to wash out here for you and then you are going to have to keep extending this embankment.

General POTTER. The closure will be made from both ends. There is a stockpile on the dam at the present time, right there. The water would be 10 or 15 or 20 feet deep.

Mr. PHILLIPS. You are going to make this river come down here [indicating] and come through the spillway, and stop washing out the present channel?

General POTTER. In the meantime, we can control the flow at Fort Randall down to 7,000 cubic feet a second. We can do that by shutting the gates at Randall.

Mr. PHILLIPS. When you are able to do that, you come out and see me in California. Do you think you will be able to do that?

General ITSCHNER. No question about it.

Mr. PHILLIPS. And not wash out this farm here?

General POTTER. We own that farm.

Mr. PHILLIPS. You are not going to wash out that area?

General POTTER. We will work from both ends; that will cut the flow down from Fort Randall. We will build up the bank.

GARRISON RESERVOIR, N. DAK.

Mr. RILEY. The next project to be considered is the Garrison Reservoir of North Dakota. This is a multipurpose dam.

Without objection, we will insert pages 96 through 99 of the justifications.

(The matter referred to follows:)

GARRISON RESERVOIR, N. DAK.

Location.—On the Missouri River, 1,455 miles above the mouth, in McLean and Mercer Counties, N. Dak., about 77 miles upstream (northwest) from Bismarck, N. Dak., and 11 miles below (south) of Garrison, N. Dak.

Authorization.—1944 Flood Control Act.

Benefit-cost ratio.—1.20 to 1.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$279,000,000	
Estimated local cash contributions	0	
Estimated project cost	279,000,000	
Appropriations to June 30, 1954	206,680,700	
Appropriations for fiscal year 1955	25,000,000	
Appropriation to date	231,680,700	83
Appropriations requested for fiscal year 1956	20,000,000	90
Balance to complete after fiscal year 1956	27,319,300	

PHYSICAL DATA

Dam:

Type: Rolled earth fill.

Height: 203 feet (height above stream bed).

Length: 12,000 feet (at crest).

Reservoir capacity:	*Acre-feet*
Flood control	4,250,000
Multiple purpose, including flood control, power, irrigation, navigation, and other purposes	13,850,000
Dead storage	4,900,000
Total	23,000,000

Spillway:

Type: Gate controlled, concrete, ogee weir with stilling basin.

Capacity (maximum pool): 827,000 cubic feet per second.

Power installation:

Initial: 3 units at 80,000 kilowatts, 240,000 kilowatts.

Ultimate: 5 units at 80,000 kilowatts, 400,000 kilowatts.

Presently planned: 3 units at 80,000 kilowatts, 240,000 kilowatts.

Nominal head: 162 feet.

Status, Jan. 1, 1955

	Percent	Completion schedule
Entire project	81	Entire project, June 30, 1958.
Acquisition of reservoir area	84	Land acquisition, June 30, 1958.
Relocations including the completed Snake Creek embankment subimpoundment.	62	Relocations, June 30, 1958.
Dam including completed construction of embankment stages I, II, III, IV, excavation of intake and outlet channels, excavation of spillway channel and stilling basin, tunnels and closure of embankment, also including construction of intake structure, regulating gates, hoists and other necessary equipment, construction of spillway, spillway stilling basin, highway bridge, spillway gates, hoists and necessary operating machinery.	87	Dam, Dec. 31, 1957. Penstocks and surge tanks, Jan. 31, 1956. Powerhouse and switchyard, June 30, 1956. Turbines and generators, June 30, 1956. Buildings, grounds and utilities, June 30, 1957.
Penstocks and surge tanks	61	Reservoir clearing, Aug. 31, 1957.
Powerhouse including construction of powerhouse and switchyard, procurement of necessary accessory electrical and miscellaneous equipment.	82	Habitat replacement, Sept. 30, 1957. Access roads and public facilities, June 30, 1958.
Procurement of 3 88,000 horsepower turbines, 3 80,000 kilowatt generators, and governors for 3 units, including installation.	65	Permanent operating equipment, Sept. 30, 1957. Water in intake channel, Apr. 10, 1953. Dam closure, Apr. 15, 1953. Power on line: 1st unit, April 1955. 2d unit, November 1955. 3d unit, May 1956.
Buildings, grounds, and utilities including completed construction of the town of Riverdale, school, heating and powerplant, utilities and administration buildings; also construction of boatyard, public facilities, dam and road lighting and unit substation.	96	
Reservoirs including clearing of reservoir area of trees, shrubs and other items detrimental to the reservoir operation.	42	
Replacement of wildlife habitat including planting of trees, shrubs and other necessary cover.	4	
Construction of access roads, parking areas, planting of trees and necessary facilities for public health and safety.	66	
Procurement of necessary equipment for efficiently operating and maintaining the completed dam and reservoir.	53	

JUSTIFICATION

The necessity of immediate completion of flood-control reservoirs on the main stream of the Missouri River has been sharply emphasized by major floods in recent years. Floods of 1943, 1944, 1945, and 1952 caused damages exceeding $294 million. Alone, the Garrison Reservoir will substantially reduce floods on the Missouri River and in combination with other key units of the comprehensive plan, including local protection works, will provide protection in the Missouri Valley against floods equal to those of record.

The Federal Power Commission and the Bureau of Reclamation have found an urgent need for installation of additional electrical power in the area that can be served by the Garrison powerplant at the earliest practicable date. Already the Bureau of Reclamation has applications for power in excess of all that can be provided by the ultimate plant capacity. These applications have been made despite new generating facilities recently completed by local power companies and electric power cooperatives. The large block of electrical power which will be produced by the Garrison powerplant will be a tremendous asset in the development of the mineral and industrial resources of North Dakota, northern South Dakota and portions of Minnesota and Montana.

The availability of water for irrigation together with availability of electrical energy for pumping will provide the necessary means for agriculture, now the primary product of the region, to keep pace with the recent step-up of the industrial development occasioned by the discovery of oil in North Dakota.

In addition to flood control, power production and irrigation benefits, the storage of previously disastrous flood peaks will provide aid to navigation and for pollution abatement.

Fiscal year 1956.—The requested amount of $20 million will be applied to:

Continue acquisition of lands in the reservoir area	$1,458,000
Continue relocations	1,502,700
Continue construction of earth dam and spillway	9,405,100
Continue construction of powerhouse	2,154,100
Continue construction of penstocks and surge tanks	880,100
Complete procurement of turbines and generators	1,395,600
Continue and essentially complete buildings, grounds and utilities	221,700
Continue and essentially complete reservoir clearing	234,300
Continue habitat replacement	79,000
Continue construction access roads, parking areas, public facilities	550,200
Continue procurement of permanent operating equipment	176,200
Engineering and design	600,000
Supervision and administration	1,418,000
Stores	−75,000
Total	20,000,000

The earliest possible completion of Garrison Dam is essential in providing necessary flood control for prevention of damages in the Missouri Valley immediately downstream from the dam, such as have occurred in recent years. By July 1, 1955, powerhouse and switchyard, penstocks and surge tanks and procurement of turbines and generators will have progressed to the stage (first power unit on the line April 1955) where it will be necessary to continue construction at the above scheduled rates in order to avoid increased construction costs and to assure that the second power unit will be placed on the line in November 1955 and that the third unit will be added in May 1956.

Mr. RILEY. I note the request for fiscal year 1956 is $20 million, which will complete the project up to 80 percent.

Have we any unobligated funds on that project, General?

General POTTER. As of March 31, we have $394,732 unobligated, $4,211,858 unexpended. We expect to be at zero, on both of those categories, at June 30.

Mr RILEY. Do I understand that you had to borrow $5.5 million from some other project to complete this year's work?

General POTTER. $5.5 million, $2 million first, and $3½ million later.

Mr. RILEY. So you owe the projects, now, $5.5 million, is that right?

General POTTER. Yes, sir; and which will not be repaid out of the currently requested appropriations; probably not until next year.

Mr. RILEY. Why was it necessary to obtain this money? Did your contracts develop faster than you expected?

General POTTER. There was such a large amount of work under contract, both on the dam and the spillway, and also on the powerhouse, that it was essential to have additional funds to let those contractors proceed on the schedules which we had approved in years previous.

The $5.5 million, Mr. Chairman, was applied $3 million to the spillway and embankment contractor, $1.5 million to the penstocks and surge tanks, $500,000 to the generators, the balance of $500,000 went to other smaller contracts.

Mr. RILEY. Has there been any change in the benefit-cost ratio benefits?

General POTTER. Yes, sir. As all of our power projects have, this one has gone down to 1.2, largely due to the taxes foregone feature which was discussed under Gavins Point.

GENERATION SCHEDULE

Mr. RILEY. Could you give us the schedule date that power will be on the line for the various generating units?

General POTTER. Power from the first unit will be on the line this fall, the second unit in November, the third unit, May 1958, sir. That will be three 80,000 kilowatt units.

Mr. RILEY. Is that all the power generating equipment that is contemplated at this time?

General POTTER. That is all that is included at this time, sir. We are putting in the powerhouse for the two final units.

Mr. RILEY. Is the reservoir sufficient to support two more units?

General POTTER. It will be, sir. We are at the present time building up to the minimum power pool and expect to have that built up by early summer.

PROTECTION OF IRRIGATION PROJECTS AND WILLISTON

Mr. RILEY. Are there any recent developments with respect to protecting the lands at Buford-Trenton and Lewis and Clark irrigation projects and the town of Williston?

General POTTER. Developments in the last 6 months are very important. There is no change in the plant to protect Williston, at this time. The cost of that protection is the same as last year, $4,320,000.

PURCHASE OF IRRIGATED LAND

However, in lieu of protecting the Lewis and Clark, and Buford-Trenton irrigation projects, the local owners of land in those two districts have requested us to purchase their land at a price set by them in lieu of protection. The figures, I believe, are quite interesting, sir.

To protect Lewis and Clark and Buford-Trenton, the Government cost would be $8,467,000, with annual maintenance practically in perpetuity, of $180,000 per year. Capitalizing that over the life of the structure that figure of $180,000 amounts to $4,600,000.

The local people propose that we buy them out, and in the case of Buford-Trenton, that we protect the remaining part of the irrigation district. The total cost for purchasing and protecting the upper part of the Buford-Trenton district, and for purchasing Lewis and Clark, will give us a total Federal expenditure of $7,091,000. So the immediate savings to the Government will be $1,376,000, not considering maintenance, but with the capitalized maintenance the savings will be $5,976,000.

The Government would then own the land in Lewis and Clark, and in the East Bottoms of Buford-Trenton, and would lease that land back, under existing policy, to the present owners.

So, instead of having to pay $180,000 a year for maintenance, we would realize about $64,000 a year of lease money, three-quarters of which would be given to the State.

Mr. RILEY. Did I understand you to say that a portion of the Lewis-Clark irrigation district would be protected?

General POTTER. That is our proposal and it has always been the understanding with respect to Garrison, sir, that the Garrison project included the protection of Lewis and Clark and the Buford-Trenton Irrigation Districts.

Mr. RILEY. I understand that, but if you purchased the land in these two irrigation districts, there is still a proportion you would have to protect, am I wrong in that?

General POTTER. We would protect no land from flooding, sir. The levees would not be in consideration any more, but the Buford-Trenton people desire that we protect the rest of the Buford-Trenton district from bank erosion.

On the map, this is the Williston area still required to protect against the area shown as being flooded.

Mr. RILEY. That is around the town?

General POTTER. Yes.

Lewis and Clark were proposed to be protected by that levee. In lieu of that, they want us to buy their land. The East Bottoms, portion of Buford-Trenton would have been protected by this levee [indicating]. In lieu of that, the entire Buford-Trenton Irrigation District, which is one irrigation entity, desire that we buy the East Bottoms area and protect the rest of Buford-Trenton, against erosion by the river.

Mr. RILEY. Would that mean extending some dikes?

General POTTER. Dikes and revetments. They are willing, and have so stated, however, that we just buy that area here [indicating].

They propose, and Senator Young has put it under one word, calling it a package deal, that this be bought at the prices they have stated, and that about $2 million be expended to protect the rest of the irrigation district against erosion.

The total savings to the Government in either case is very substantial.

Mr. RILEY. Was the $2 million to protect the balance of the Bufort-Trenton Irrigation District contemplated in your original plan?

General POTTER. No, sir, not the bank protection, but we have been on record for many years, Mr. Riley, that the Garrison plan provided for the levee protection of these two districts.

Mr. RILEY. You have the authority to purchase this land, if necessary, do you?

General POTTER. Do you mean the authority just to go in and buy them whether they want to or not, sir?

I would say not, in that case.

Mr. RILEY. Do you have the authority to buy them if they want you to.

General POTTER. If they want us to buy them, and with proper language in the bill, we can pay the price they ask, which is an inflated price.

I am, however, impressed very much by the fact that the Government will not have to maintain these levees in perpetuity, and in addition will make a very considerable savings in first cost.

Mr. RILEY. Are funds included in the request for fiscal year 1956 to make the purchases?

General POTTER. The President's budget message specifically states that no money is included for work in the Williston levees, or the Williston area, and in order to go ahead with this, additional funds would be required this year.

Mr. RILEY. Does the Bureau of Reclamation have any interest in this project and what is their attitude?

General POTTER. The Bureau of Reclamation has an interest in the Buford-Trenton Irrigation District. They have been cognizant of the offers made by the people in Buford-Trenton. They have not taken any position that I know of.

Mr. RILEY. Does the Bureau of Reclamation have any money invested in these irrigation districts?

General POTTER. May I add to that statement this, then, sir: The Buford-Trenton project will be able to continue to operate the East Bottoms, exactly as it has in the past, since the 1,850-foot level interferes with that area only to a very minor extent. The Lewis and Clark area will be able to operate exactly as it has in the past for about 6 or 7 years, after which about one-third of the irrigation district will be inundated on the average about 6 percent of the time.

RESERVOIR LEVEL

Mr. RILEY. I believe you testified the other day that the engineers still propose the 1,850-foot level, is that right?

General POTTER. We have never had any other plan, sir.

Mr. RILEY. And that is the level at which you would permit full capacity of the reservoir to be used, is that right?

General POTTER. Yes, sir. Any other level would result in a great economic loss to the area, to the Government, and in power production, but would also increase the annual operating cost of the irrigation works to be installed by the Bureau, considerably.

May I also add, sir, that my office has been in receipt of a great many resolutions covering almost the entire eastern part of the State, by counties, cities, REA's flood protection and irrigation organizations, the Governor's State Water Board, the Greater Souris Association, the Greater North Dakota Association, and others, resolving in favor of 1850.

Mr. RILEY. A considerable amount of this water, then, will be used for irrigation purposes?

General POTTER. An appreciable amount, sir, in the neighborhood of 2 to 3 million acre-feet per year, when the irrigation project is developed.

Mr. RILEY. Mr. Magnuson.

PURCHASE OF IRRIGATED LANDS

Mr. MAGNUSON. General Potter, you said that local interests propose that the Government buy certain lands in the Lewis and Clark, and Buford-Trenton Irrigation District, in lieu of constructing protective installations for those districts, is that correct?

General POTTER. Yes, sir.

Mr. MAGNUSON. And you said in spite of the fact that the price they are asking is an inflated price, it would be a good deal as far as the Government is concerned?

General POTTER. It would result immediately in a saving of $1,376,000 and ultimately in a saving of nearly $6 million, sir.

Mr. MAGNUSON. You mean you can buy the land at this price more cheaply than you do the protective work?

General POTTER. Yes, sir.

Mr. MAGNUSON. Why should we pay an inflated price?

General POTTER. The protection of these irrigation districts has been reiterated in many hearings since 1945. It is common understanding and always has been that they would be protected and it was one of the premises upon which the State accepted the Garrison project.

In changing that plan, we feel that we can only change it, on the instigation of the people who are concerned in the project.

I do not look at it so much as buying land, as an alternate method of accomplishing the same purpose.

Mr. MAGNUSON. You would be paying first the market value of the land, let us say, and then you would be allowing something additional, because actually, the people would prefer not to sell. They would prefer to stay there and continue to farm their lands, and so forth. Would that be why we should consider paying an inflation price?

General POTTER. Well, sir, perhaps I used an unfortunate word. The proposal they made to the State is this: "By tract we will sell for this amount of money."

In other words, owner "A" wants $65,000 for his land and improvements. The irrigation district has sponsored this and has collected the data as to what each landowner wants for his property. They then say, "We will get out of business as a legal entity, instead of taking your protection, for this amount of money."

Mr. MAGNUSON. The sale price they fix won't set them up in luxury for the rest of their lives, I take it.

General POTTER. I don't believe there is much luxury among farmers in North Dakota, Mr. Magnuson. They are a hard-bitten, hard-working group of people. I know a great many of them in these districts.

LEVEL OF RESERVOIR

Mr. MAGNUSON. Is it true there is some controversy about the level of the pool?

General POTTER. There has always been some controversy about the level of the pool, sir.

Mr. MAGNUSON. Do I understand that the plans of operation has been and will remain constantly at the 1850-foot level?

General POTTER. Yes. As Secretary Aandahl said when he was Governor, the position of the State was publicly taken and has been continuous ever since for that level.

BORROWING AND LENDING BETWEEN PROJECTS

Mr. MAGNUSON. Under the summary of the construction program I see an item here "Borrowed or loaned, $5.5 million, for fiscal year 1955." I take it that was borrowed. Will you explain that item, please?

General POTTER. That money was borrowed because the bill provided that we were to keep the power generation on schedule. It said that in so many words.

The tenor of the testimony during the year and in prior years was that the committee felt that the Chief of Engineers should manage his funds to get the most construction out of them.

The Chief of Engineers made available $5.5 million—and that money was used to pay for construction which was already under contract and which we had committed ourselves to, a large part of it directly to contractors on the powerhouse and surge tanks, part of it to the embankment contractor so that water could be stored for production of power. That money will be repaid in the next proposed budget, I believe.

Mr. MAGNUSON. Do you mean 1957?

General POTTER. Yes.

Mr. MAGNUSON. This $5.5 million was borrowed, as I understand you, from other projects—from appropriations for other projects in the Missouri Basin?

General POTTER. Yes, sir, to some extent in the Missouri basin.

Mr. MAGNUSON. How wide is the discretion of the engineers in that respect?

General POTTER. This committee is on record several times in past years that they believe that that authority is inherent in the Chief's operations, and I know in at least one case has been somewhat critical because it wasn't done oftener. When I was in the Chief's office, the same criticism was once made.

I do not know how much money the Chief has loaned other projects this year, but I do know that in the Missouri Basin this money was essential to keep commitments with contractors alive. We feel it is a legal authority.

Mr. MAGNUSON. Let's take an extreme case, which would never happen. Would you say that the Corps of Engineers has authority to take all the money appropriated for the Corps and put it into a single project?

General POTTER. No, sir.

Mr. MAGNUSON. That is carrying the same theory farther, isn't it?

General POTTER. In the list of projects that make up the record on an appropriation are projects—let's say 150 of them, each one of which has a certain amount of money. I would say we take that as a directive that construction is to continue on those projects for items about which we have testified.

It is a matter of the management of the funds. At Kansas City, last year, I was able to make a loan from that project of $250,000 that we couldn't use during the year, for application to a project that already had money but needed a little more to continue operations.

Mr. MAGNUSON. There is not necessarily an implication here that that $5.5 million could not have been expended for the purposes for which it was appropriated, is there?

General POTTER. I don't believe I can think of a case that resulted in the slow-down of any work that had been testified about before the Congress.

General ITSCHNER. I might say that is true throughout the Nation. We make no loans that would slow down a project by virtue of making that loan.

Mr. MAGNUSON. It follows, then, that there have been excessive appropriations for the projects from which you borrowed, doesn't it?

General POTTER. No, Mr. Magnuson. We must remember that this particular budget was made up last July. Since that time we have had one and a half construction seasons. So when we get the money in July, if the bill comes out then, we will be a year better prepared to know exactly what funds are necessary on each contract.

Mr. MAGNUSON. I am not necessarily questioning the procedure. I was interested in the authority for it, and in knowing just how far it could be carried and wondering if we on the Appropriation Committee are wasting time by allocating specific sums to specific projects. Here is a project increased by better than 20 percent, through a loan from other appropriations.

General POTTER. I think this and one other project in the United States are the only ones that received large amounts like this, and I imagine the loans came from a great many projects around the country. General Itschner is better prepared to testify.

I do not have the authority to make such loans. It must be controlled in the Chief's office.

General ITSCHNER. We believe that the power to make loans is within the discretion of the Chief of Engineers. It obviously would be made only in cases where there is a clear-cut case that the money is not needed on the project from which the loans are made, and it is needed due to unforeseen circumstances—such as greater progress due to weather. There are many other factors that might occur which require additional funds to keep the projects moving along.

Mr. MAGNUSON. What was the nature of the emergency or change of conditions that made it seem advisable to borrow that much money?

General POTTER. The bill required that we keep the power-generation facilities on schedule. The amount of money that was made available in the appropriation was not what we had requested to maintain that schedule.

Mr. MAGNUSON. Do you know whether you had requested $51½ million more?

General POTTER. Yes, sir.

Mr. MAGNUSON. Exactly?

General POTTER. Within a few hundred thousand dollars, I believe, sir.

Mr. DAVIS. I think you asked for $27½ million and got $25 million?

General POTTER. I believe we started out with a request of about $32 million.

Mr. MAGNUSON. Essentially, the Corps of Engineers has a veto power over the Appropriations Committee. The Congress in denying $51½ million for this project they expressed their opinion as to how much should be spent but you were able to spend as much as you had originally planned through borrowing it from other appropriations.

General POTTER. Yes, but if that sentence had not been in the conference report requiring that we keep the power on schedule, the size of the loan I could have received from the Chief's office would have been quite nominal.

Mr. MAGNUSON. Was that sentence in the report or in the bill?

General ITSCHNER. The conference report. It indicated that power projects must be kept on schedule and that the Chief of Engineers was expected to keep them on schedule.

Mr. MAGNUSON. Was it qualified in any way to suggest that if necessary money should be transferred from other projects?

General ITSCHNER. Yes, sir. I don't recall the exact wording but it was certainly clear that we were supposed to use the appropriation in such a manner to keep power projects on schedule.

Mr. RILEY. Isn't it true that this money is usually borrowed from projects that have been delayed for one reason or another and it doesn't delay the project from which you borrowed?

General ITSCHNER. That is correct. We never take money from a project which has need for those funds during that fiscal year. Furthermore, the money is paid back at the first opportunity, so those projects are not delayed.

Mr. MAGNUSON. Would you borrow money in this manner without such language in the report?

General ITSCHNER. Yes, we would, but the amounts involved would be rather small in that case. We would not borrow anything like this amount of money without congressional direction or approval.

GARRISON RESERVOIR

PURCHASE OF IRRIGATED LANDS

Mr. RILEY. I am still somewhat disturbed about the obligation we may have to the Bureau of Reclamation on these irrigation districts. Was contact made with the Bureau of Reclamation to determine what their attitude would be in case you purchased those, and what the obligation would be to the Bureau of Reclamation for such moneys as they might have invested there?

General POTTER. I know that the Bureau is cognizant of this proposal by the local people.

Mr. Johnson has sat with the Bureau in conference on this problem but I do not believe they have committed themselves either for or against the proposal.

I might further add, sir, that there has been no contract between these local owners up there, and the Bureau of Reclamation, for this irrigation system.

Mr. JOHNSON. I might add, sir, that I have discussed this latest proposal by the local people informally with members of the Bureau of Reclamation, and they have indicated that they would have no objection if that is what the local people wanted to do.

Mr. RILEY. I was just wondering if the Bureau of Reclamation didn't have an investment in this property which at some time had to be amortized.

Mr. JOHNSON. That would have to be repaid, sir, from the amounts paid to the owners of the land.

Mr. RILEY. The landowners would reimburse the Bureau of Reclamation?

Mr. JOHNSON. Yes.

Mr. RILEY. Do they understand that?

Mr. JOHNSON. Yes.

Mr. CROSTHWAIT. I would like to point out our interest is only in the Buford-Trenton irrigation district and we have no interest in that Lewis and Clark irrigation district.

General POTTER. Lewis and Clark is State developed and practically paid out, as I remember.

Mr. RILEY. The same situation would apply to those people and their obligations to the State?

General POTTER. Yes, sir.

Mr. DAVIS. Both of those areas referred to are now being used for agricultural purposes?

General POTTER. Yes.

Mr. DAVIS. Did the plan as now contemplated—and I use the word "now," in prior conversation of the return to these property holders—include building of levees to protect only the East Bottom of that Buford-Trenton irrigation district?

General POTTER. The East Bottom area is the only one threatened by operation at 1,850, and that only for a very small part. A draw

in the downstream end. However, in future years, there may be an aggradation threat against the others. That is so far in the future that I cannot present a timed plan to this committee. We have a plan if it is required, but when it would be required, we feel it might be 30 or 40 years or more, if the aggradation threat develops.

Mr. DAVIS. How many acres are involved in that East Bottom?

Mr. JOHNSON. The irrigation area is 2,635 acres and the nonirrigated area, 4,981 acres. Included in the 2,635 acres is 275 irrigated acres in this area and this area [indicating]. It is outside the East Bottoms area.

Mr. DAVIS. How much are they asking for that? How much for the whole works? That is about 7,600 acres.

General POTTER. For Lewis and Clark they are asking $2,031,000. For Buford-Trenton they are asking $1,617,000.

Mr. DAVIS. Is that over $2,000 an acre?

General POTTER. No, sir.

General ITSCHNER. You gave him the figures for East Bottom, I believe.

General POTTER. The average price requested for Lewis and Clark is $314 an irrigated acre, I believe.

Mr. DAVIS. I am trying to get at the East Bottom, right now.

General POTTER. The average price for the East Bottoms is $314 an acre, plus improvements. That is for the irrigated acres. About $100 an acre for the nonirrigated acres.

Mr. DAVIS. How many sets of buildings are there on that area?

General POTTER. We don't have that information here, sir. Here are the complete figures on the Buford-Trenton area, and on the two sheets preceding that. The first few sheets are on Lewis and Clark and you arrive at similar analysis on Buford-Trenton at about sheet 4 or 5.

Mr. DAVIS. How many acres altogether are involved in the Lewis and Clark portion it is suggested the Government buy?

Mr. JOHNSON. There are 4,905 acres of irrigable land and 2,936 acres of nonirrigable land.

Mr. DAVIS. I believe you stated that you have no authority to condemn that land. As it stands today, then, one landowner, by holding out, could place you completely at his mercy?

General POTTER. No, sir; we would deal with the irrigation district.

Mr. DAVIS. If they can't get everybody in the district to agree to this proposal, it all boils down to the same thing then doesn't it? The deal can't go through?

General POTTER. No, sir. The State law provides that a district can be disbanded under the same vote that caused its formation which is about 60 percent in North Dakota. These people could disband this district, which they will do anyhow, I presume, in which case I think we could go into the other owners and deal with them on the same basis. I do not personally believe there will be three people holding out when the chips are down.

Mr. DAVIS. But it is all to their advantage to hold out, if you have no authority to condemn.

General POTTER. I have authority to condemn if the vote of the people is against protection. In that case, we could condemn those people who did not want to go along. They would never permit it, because condemnation proceedings would give them the court-appraised value of the land, which would probably be less than this.

Mr. PHILLIPS. You would have a reverse process under those circumstances. The only recourse of the holdouts would be to sue you for damages and that would give them the same amount as if they subjected themselves to condemnation proceedings and they would have court costs to pay in addition.

General POTTER. Our preclusion against condemnation now is a moral preclusion of having included this protection as a part of the Garrison poject.

GENERATION SCHEDULE

Mr. DAVIS. You said you would get the power on in April 1955.

General POTTER. It will not be on until late summer or early fall, for two reasons. One is a lack of water in the upper river without taking it from Fort Peck.

The other is in the installation of the penstocks and the transition section to the Surge tanks. We ran into difficulties which caused us to change our method of construction, which will add about 3 to 4 months on the first unit. However, the second unit is the vital one for winter load, and it will be on time.

Mr. DAVIS. That delay is true in spite of the $5 million and a half-dollar loan to the project?

General POTTER. Yes. The difficulty with the penstock risers, the surge tank, and the penstock problem was something that could not have been foreseen.

Mr. DAVIS. It seems there was a reduction of about $10 million.

General POTTER. $10,854,000 in the cost of the project; yes, sir.

Mr. DAVIS. The explanation of which is?

General POTTER. Good bids. Every major item and practically all the minor items are under contract. Very few minor items—some bridges in one county, still to go.

ADDITIONAL POWER UNITS

Mr. DAVIS. I believe you told us the other day about a plan of delaying the second powerplant at Fort Peck and instead getting that power from Garrison. What can you tell us about that?

General POTTER. The plan for Garrison has been the initial installation of three 80,000-kilowatt generators and an ultimate of five. The penstocks for three are being installed.

The addition of those two later units not previously budgeted, nor budgeted this year could be planned at the present time.

Mr. DAVIS. The installation of such equipment would raise the estimated cost figure. The figure we have before us at this time does not include those two additional power generators?

General POTTER. That is right.

Mr. DAVIS. The contemplation of these 2 additional power units is based on the 1,850-foot head; is it?

General POTTER. Yes, sir.

Mr. DAVIS. So the Bureau of the Budget on the one side said you are not to do anything to indicate operation above the 1,840 level and on the other hand they suggested power units which contemplate something in addition to 1,840, is that correct?

General POTTER. The Bureau of the Budget, as I understand it, indicated that they felt the extra power at Garrison could be put in faster and cheaper than the power at Fort Peck. I believe the problem

was misunderstood, as we have official statements from the Bureau of Reclamation that both of these installations are required by the time they can be put on the line.

General ITSCHNER. The number of units you install at this project, 3 or 5, is not entirely dependent upon the elevation of the pool.

General POTTER. But you get the ultimate power out of that higher elevation.

General ITSCHNER. Yes; but it doesn't make any difference as to the number that you install.

Mr. PHILLIPS. Not even in dry years?

General ITSCHNER. In dry years it would. That is right, it would in dry years.

Mr. RILEY. Mr. Davis, will you yield for a question there?

Mr. DAVIS. Yes.

Mr. RILEY. Is this a recommendation of the Bureau of the Budget? Do they have the authority to tell you to cut off completing the project at one location and complete one at another, or do they simply have the authority to recommend to the Congress and let them pass on it.

General POTTER. As I stated yesterday in answer to a question, the Chief of Engineers proposed $1.5 million to permit initiation of construction of a second powerplant at Fort Peck. That was an over-ceiling recommendation. In its consideration, as I understand it, they eliminated, or did not include that item, on the basis that Garrison would be a more favorable installation.

Mr. RILEY. In other words, the installation at Fort Peck was never approved and never submitted to Congress for its approval?

General POTTER. That is right, sir, except that you did permit planning money last year.

BENEFIT-COST RATIO

Mr. DAVIS. You have a figure of benefit-cost ratio of 1.2 to 1 at Garrison at the present time. That is based on 3 units instead 5; is it?

General POTTER. The 1.2 is based upon ultimate installation.

Mr. DAVIS. What kind of a benefit-cost ratio are we going to have without the 5, then? Something less than 1?

Mr. JOHNSON. It is over 1.

Mr. DAVIS. Insert that for the record; will you?

Mr. JOHNSON. Yes, sir.

(The information requested follows:)

The benefit-to-cost ratio based on the powerhouse structure for 5 units but the installation of the initial 3 units only is 1.09 to 1.

ADDITIONAL POWER UNITS AT GARRISON AND FORT PECK

Mr. DAVIS. There is considerably more water available at the Garrison Dam than you can use, even at maximum loading, with three power units to be put in there.

General POTTER. At Fort Peck?

Mr. DAVIS. No, I am talking about Garrison, now.

General POTTER. That is right, sir.

Mr. DAVIS. You can't make maximum use of available water—that is the power-available water, with the 3 units in there?

General POTTER. No, sir, you cannot.

Mr. RILEY. Is that same situation true of Fort Peck?

General POTTER. Yes. About half of the water is used at Fort Peck.

Mr. PHILLIPS. Now, you are talking about powerplants and a certain number of units in each plant; is that right?

General POTTER. Yes, sir.

Mr. PHILLIPS. How many units are you contemplating building at Fort Peck?

General POTTER. In the second powerplant we are contemplating 2 units.

Mr. PHILLIPS. How many plants?

General POTTER. There now exists a powerplant with 3 units in it.

Mr. PHILLIPS. Now, you have a second one in which you are building two?

General POTTER. We have not started that, sir. We just have plans. There is no money in the present budget for it, sir.

Mr. PHILLIPS. After you get those two, do you want to build more than that eventually?

General POTTER. No, sir; that will take up the water capacity.

Mr. PHILLIPS. At Garrison do you have any plants built?

General POTTER. The plant is under construction and three units are being installed.

Mr. PHILLIPS. Beyond that do you contemplate any more?

General POTTER. There are two holes for the final two units of the installation.

Mr. PHILLIPS. And that is where you are having a little difference of opinion with the Bureau of the Budget, on those two that you are talking about?

General POTTER. There is no difference of opinion. They made the decision, sir.

Mr. PHILLIPS. Do you think it is a good decision? If not, that is a difference of opinion.

General POTTER. I am a member of the executive department, sir.

General ITSCHNER. I think the budget would entirely agree that they should both be constructed. It is only a question of priority.

General POTTER. This budget has nothing in for those two.

Mr. PHILLIPS. When you give us the total cost of the project, the project-cost estimate—do I have the right one, $279 million?

General POTTER. Yes, sir.

Mr. PHILLIPS. Does that include those two?

General POTTER. It includes the initial three only.

Mr. PHILLIPS. You have them built?

General POTTER. They are being built.

Mr. PHILLIPS. Actually a figure of $279 million is not an accurate figure.

General POTTER. We have never come before this committee or the Bureau of the Budget with a proposal to install those last two units.

Mr. PHILLIPS. You have no authorization?

General POTTER. There is authorization existing, yes, sir. They will be put in when the Bureau of Reclamation and the Federal Power Commission says a need for the power exists. We would then come before this committee, after budgeting the item, and explain.

Mr. PHILLIPS. You show a cost estimate of $279 million and then you say, "That doesn't include two units we want to build in the future."

General POTTER. I think the committee has always understood that the project cost estimate covered only the initial power installation.

Mr. PHILLIPS. You see, I am handicapped. That is my trouble. I am really asking for information and not trying to criticize. That is not really the total cost.

General POTTER. That is right.

Mr. PHILLIPS. Does that apply to all the projects?

General POTTER. At Randall and Gavins Point all units are going in, but at Oahe there is only an initial installation presently planned, sir.

Mr. PHILLIPS. Then these figures indicate that that is all you can get at the moment?

General POTTER. Oh, no.

General ITSCHNER. This same principle applies throughout the country. In all cases, in power plants particularly, where we have plans for an initial and an ultimate installation, and we consider our authority at this time to extend only to the initial installation, our project cost is based upon that initial installation.

Mr. PHILLIPS. Then, General, you interpret that, in the terms of General Potter's statement, that you have installed 3 units at Garrison and you asked for 2 more.

General ITSCHNER. We did not ask for two more.

Mr. PHILLIPS. I thought the Bureau of the Budget included that in the request.

General ITSCHNER. We didn't even request it of the Bureau of the Budget. Some day we will ask for it and when we do, this Federal cost estimate will go up to include the cost of those two additional power units.

Mr. PHILLIPS. Then the question in my mind becomes one of, at what moment do you feel you have the authority to move that cost up to include the cost of two more units? Is it on the basis of a need for power in the area?

General POTTER. As determined by the agencies concerned with the sale of that power, sir.

Mr. PHILLIPS. And you have the authority already to do that. You don't have to come back and ask anybody else for authority to put on two more units?

General POTTER. We would have to present that to the Bureau of the Budget, to this committe, and the Senate committee.

Mr. PHILLIPS. But you wouldn't have to go back to a legislative committee?

General POTTER. No, sir.

Mr. PHILLIPS. I have a couple general questions if you don't mind, that I will just take up here, and get them out of the way.

EXTENT OF OPERATION OF POWERPLANTS

You speak every now and then of excess power. For example, you have two units at Fort Peck that are operating; is that right?

General POTTER. Three, sir.

General ITSCHNER. Three initial, sir, and two more to come, in the second powerplant.

Mr. PHILLIPS. You say the capacity of those is how many kilowatts?

General POTTER. There are two 35's, and one 15. That is 85,000 kilowatts.

Mr. PHILLIPS. When you put them in operation, you have run over this estimated capacity. I recall you gave one at 220 up to 276.

General POTTER. We have operated that plant at about 105 percent of capacity.

Mr. PHILLIPS. That is good from an engineering standpoint.

Is that excess capacity, that reserve that you have; does that follow a more or less firm percentage? I mean to say could you operate any of your plants with reasonable assurance at 105 or 110 capacity?

General POTTER. Yes. When we have built a plant we have built into it more power than any stated figures show, if you read a stated figure for its size or capacity. They have an overload capacity.

General ITSCHNER. Fifteen percent is the amount that we generally specify, sir, and most generating units can go up to that.

Mr. PHILLIPS. Reasonably close to that figure?

General ITSCHNER. Sometimes slightly more.

BENEFIT-COST RATIO

Mr. PHILLIPS. On this fact, in answering Mr. Magnuson's question, you said you figured taxes—this is, I presume, in figuring benefits, or something?

General POTTER. Costs, sir.

Mr. PHILLIPS. You figured the taxes a private utility would have paid if you hadn't taken it over.

General POTTER. If a private utility had built it; yes, sir.

Mr. PHILLIPS. But you eliminated all the agricultural area you took in. You did not figure it on that?

General POTTER. That is right, sir.

Mr. PHILLIPS. You are going to take areas in some parts of the country—you are going to take out of circulation as much as a million acres of land, which would have produced taxes for the local and Federal communities.

General POTTER. Yes, sir.

Mr. PHILLIPS. Why don't you figure them in as well as a powerplant? Is it a complete picture when you figure only what might have been paid by a private industrial plant on the area.

General POTTER. In answer to that I can state that at least in two reservoirs, we have leased back to private owners the land above the pool, which we do, of which lease price we return 75 percent to the States. At Kanopolis that has amounted to twice what the county used to get from taxes and in Harlan County I believe it is close to twice.

Mr. PHILLIPS. Why don't you take that into consideration when you are setting your figures?

General ITSCHNER. We contemplate that the services that are furnished with those taxes are not required—in other words the schools, the road repairs and all those things.

Mr. PHILLIPS. They would not have been there if you hadn't come?

General ITSCHNER. After inundating this land you no longer have the need for the local governmental services for which those taxes are assessed, so theoretically, at least, it should reduce their requirement for taxes by that same amount.

Mr. PHILIPS. I think that is probably right.

What percentage of the area of North Dakota is presently taken out of taxation by the Federal Government?

General POTTER. I believe a much larger percentage of public lands owned by the Federal Government than we are considering here.

Mr. PHILLIPS. There is no question about that.

It is getting high in most of the Western States and is becoming a serious tax problem. I think it is over 47 percent of the taxable land in California.

I think the in dicee formula has worked out fairly well, hasn't it, generally?

General ITSCHNER. It is fairly well worked out. There is some inaccuracy in it.

Mr. PHILLIPS. I am very much intrigued by something I meet in this detail and that is this benefit ratio. I am intrigued by the fact that when you are asked about the benefit ratio, you get it down to a second decimal. I presume that means the ratio of the improvement to the cost, am I right?

General ITSCHNER. On an annual basis.

Mr. PHILLIPS. That includes the lands and the damages, which I think are easily calculable. Relocations, reservoirs, dams, fish and wildlife facilities, powerplant, roads, railroads and bridges, recreational facilities, buildings, grounds and utilities; dams, of course, includes the possibility of flood.

How do you know how many fish are going to bite and how many people are going to rent boats and how many times there is going to be a flood and to what extent over 50 years, how do you know to the second decimal?

General ITSCHNER. May I answer that, sir?

Mr. PHILLIPS. Yes.

General ITSCHNER. As far as the fish are concerned and how many are going to bite, we don't try to calculate the benefit. That is a bonus above the benefit cost ratio because it is so intangible.

Mr. PHILLIPS. How about the number of people who are going to rent boats and park in camps?

General ITSCHNER. Those are intangibles, too. Those are also bonuses to the benefit cost ratio.

Mr. POTTER. The annual benefits for Garrison, let us say, are flood control——

Mr. PHILLIPS. By the way, what was the ratio?

General POTTER. 1.20.

Flood control, power, irrigation, and navigation. Those items produce benefits. They total $19,141,000 annually.

Now, the annual charges, interest and amortization of the project——

Mr. PHILLIPS. No depreciation?

General POTTER. Interest and amortization. Operation and maintenance, and taxes foregone. Those are the actual charges against the project.

Mr. PHILLIPS. Interest on what?

General POTTER. Interest on the money.

Mr. PHILLIPS. Not interest on money that may be Government borrowed?

General ITSCHNER. That is interest on the entire Government investment in the project, at the long-range Government borrowing rate, which at the present time is 2½ percent.

Mr. PHILLIPS. When you set your benefit rate and you figure—you must figure in there somewhere the cost of power, do you not?

Mr. POTTER. The power benefits, yes, sir.

Mr. PHILLIPS. What figure do you take for that? Do you take the figure given to the Federal Power Commission?

General POTTER. The figure of the power benefit is derived by us and agreed to by the other two agencies.

Mr. PHILLIPS. The other two being Federal Power and Interior?

General POTTER. Yes.

Mr. JOHNSON. I believe these figures came from the Federal Power Commission. The power benefits.

General ITSCHNER. They definitely do concur in it. We present to them estimates which result from certain basic figures they give us.

Mr. PHILLIPS. Now, yesterday, the Department of the Interior gave us a figure of 5.5 mills and a figure of 2.5.

Do those figures correspond with the figures given you by the Federal Power Commission?

General POTTER. They are two entirely different things, sir. The annual benefits are the benefits of having the power, whereas the mill figure that you are talking about is the sale value of the power.

Mr. PHILLIPS. Doesn't that enter into the Federal Power Commission's figure?

General POTTER. They are two entirely different concepts. They are told to sell the power at a rate that will amortize the investment.

Mr. PHILLIPS. What gives you a power benefit, then? What figure gives you a power benefit if you don't take into consideration the rate at which that power is to be resold? Not you, but the Federal Power Commission.

General POTTER. The Federal Power Commission decides that there will be a demand for power in this area equal to a certain amount. Their surveys are quite complete, sir.

Then we calculate, either on the basis of an alternate steam plant or alternate hydro plant what would——

Mr. PHILLIPS. All right. Now at what rate would the alternate steam or hydroplant be expected to sell its current?

General POTTER. May I refer that to Mr. Johnson, who has documents there.

Mr. JOHNSON. The capacity value is $21.90 a kilowatt. The energy value at Garrison is 2 mills per kilowatt-hour.

Mr. PHILLIPS. When you set up your benefit ratio do you take into consideration the same figures that the Federal Power Commission takes into consideration when it sets up power charges—the same figure that the Interior Department takes when it sets its price of power?

General ITSCHNER. We use the values established by the Federal Power Commission.

Mr. PHILLIPS. You say they are different things.

General POTTER. Yes. The Department of the Interior is told to sell the power on a certain premise, to recoup the Federal investment. That has nothing to do with the benefit that comes to the area through having this power.

Mr. PHILLIPS. That I don't understand, because if they had to buy it from a private plant—if they had to buy power from a private plant, they would have to pay so much. If they buy it from a Federal plant they don't always have to pay that much because Uncle Sam is al-

ways right there, you know, standing behind the generator with one hand in his pocket. That must be in your calculation of benefit. As to what the benefit of having this power will be to the community. Am I right?

Mr. JOHNSON. Mr. Phillips, the values which I gave you were given us by the Federal Power Commission, and they determine them on the basis of the cost of producing steam power.

Mr. PHILLIPS. I understand that clearly. That is the Federal Power Commission. And those are the figures you used in setting your benefit ratio.

Now, suppose you use the figures that the Department of the Interior uses, upon which it bases its sale of power. Would you have the same benefit ratio which you have when you take the Federal Power Commission figures?

General POTTER. I think the ratio would be 1 to 1, wouldn't it?

General ITSCHNER. That benefit-cost ratio would be less on the basis of sale of power than it is in our economic analysis. There is no question about that.

General POTTER. It would be exactly 1 to 1 in that case.

General ITSCHNER. That is for the power element of the project. There are other elements of the project, too.

General POTTER. All I meant was the power element.

Mr. PHILLIPS. Then it would seem as if there was a possibility that the Interior rate is not a realistic rate. Am I right?

General POTTER. It is based solely on the cost of the producing facilities, sir, and the transmission lines.

Mr. PHILLIPS. I won't argue with you about Interior's rates, but I am not convinced, after some 9 years of hearing the Federal Power Commission's budget, that all the rates we charge from Government agencies, north, south, east, and west, are realistic rates.

General POTTER. We have nothing to do with that, sir. We just put the power on the busbar.

PROTECTION OF IRRIGATION DISTRICTS AND WILLISTON

Mr. RILEY. One final question, General, in regard to this. As I understand it, no funds have been budgeted for the levees around Williston, or around either of these irrigation districts, as yet, but you have given this information to the committee so that they may consider it and consider a proposal which you believe is going to be submitted at a later date, is that right?

General POTTER. That is right, sir.

FORT RANDALL RESERVOIR, S. DAK.

Mr. RILEY. The next project is Fort Randall Reservoir in South Dakota, which is another of the multiple-purpose projects on the Missouri River. You are asking for $7,860,000, which will complete this project up to 97 percent, is that correct?

General POTTER. Yes, sir.

Mr. RILEY. What is the financial status of that project? Will you have enough money left at the end of the year?

General POTTER. At the end of the year, all moneys will be obligated and $103,500 will not be expended.

Mr. RILEY. The present unobligated balance is $803,360.

General POTTER. That is right, sir.

Mr. RILEY. Is that another one of the projects where you have had a good experience with your contractors in your schedule of work?

General POTTER. Yes, sir, the cost of this project has decreased $3,485,000. As the chairman indicated, it is almost done.

Mr. RILEY. Without objection pages 105 through 107 of the justifications will be inserted at the top of this testimony.

(The matter referred to follows:)

FORT RANDALL RESERVOIR, S. DAK. (CONTINUING)

Location.—On the Missouri River, 921.9 miles above the mouth, about 162 miles above Sioux City, Iowa, and 6 miles south of Lake Andes, S. Dak.

Authorization.—1944 Flood Control Act.

Benefit-cost ratio.—1.36 to 1 when combined with Gavins Point.

Summarized financial data

	Amount	Accumulated percentage of estimated Federal cost
Estimated Federal cost	$195,000,000	
Estimated local cash contributions	0	
Estimated project cost	195,000,000	
Appropriations to June 30, 1954	164,398,000	
Appropriations for fiscal year 1955	17,000,000	
Appropriations to date	181,398,000	93
Appropriations requested for fiscal year 1956	7,860,000	97
Balance to complete after fiscal year 1956	5,742,000	

PHYSICAL DATA

Dam:
- Type: Rolled fill earth embankment
- Height: 160 feet
- Length (exclusive of spillway): 10,700 feet

Spillway:
- Type: Concrete-lined chute with gated overflow weir
- Capacity: 620,000 cubic feet per second

Reservoir capacity:	*Acre-feet*
Exclusive flood control	1,100,000
Annual flood control and multiple use	1,400,000
Carry-over multiple use	2,400,000
Inactive capacity	1,400,000
Total	6,300,000

Power installation:
- Initial and ultimate: 8 units, at 40,000 kilowatts, 320,000 kilowatts
- Presently planned: 8 units, at 40,000 kilowatts, 320,000 kilowatts
- Nominal head: 112 feet

Project: Fort Randall Reservoir, S. Dak.

Status Jan. 1, 1955	Percent	Completion schedule
Entire project	89	Entire project, June 1957.
Acquisition of reservoir area	94	Land acquisition, July 1956.
Relocations	87	Relocations, June 1957.
Earthwork stages I, II, III, and IV are complete and stage V is 78 percent complete.		Dam closure, July 1952.
		Power on the line (40,000 kilowatts per unit):
Penstocks and surge tanks	83	1st unit, Mar. 15, 1954.
Intake structure	100	2d unit, May 18, 1954.
Spillway structure and tainter gates	100	3d unit, Oct. 30, 1954.
Wildlife habitat planting	33	4th unit, Oct. 30, 1954.
Powerhouse, including tailrace, switchyard, and mechanical and electrical equipment.	85	5th unit, Mar. 1955.
		6th unit, July 1955.
Turbines, generators, and governors	79	7th unit, Nov. 1955.
		8th unit, Mar. 1956.

JUSTIFICATION

General.—The reservoir will operate as a unit in the comprehensive plan for flood control, navigation, conservation, and other purposes in the Missouri River Basin. The comprehensive plan is designed to protect the following cities: Sioux City and Council Bluffs, Iowa; Omaha, Nebr.; and the Kansas Citys, Kans. and Mo., as well as other urban and rural areas in the valley below the dams from severe floods such as those which occurred in 1844, 1881, 1903, 1909, 1915, 1927, 1935, 1942, 1943, 1944, 1947, 1950, 1951, and the recordbreaking flood of 1952, and from smaller floods which occur each year. Flood damages along the main stem of the Missouri River between the dam site and the mouth, from 1942 through 1953, inclusive, are estimated at approximately $550 million. The area subject to flooding between Sioux City and the mouth of the river is 1,800,000 acres, which area would be protected with the Missouri River Basin plan. Since the Fort Randall Reservoir is farthest downstream of the major reservoirs on the main stem of the Missouri River, its completion, together with completion of the authorized local protection projects, will provide a substantial degree of flood protection downstream from the dam site at the earliest practicable date. The capacity provided in the Fort Randall Reservoir is sufficient to effect substantial reductions in the flood discharges from the 79,700 square miles of contributing drainage area between that reservoir and the Garrison Dam site. The project will produce a large amount of hydroelectric power to supply a growing market in the adjacent area, and will also benefit navigation, recreation, and the low flow regulation. The Federal Power Commission and the Bureau of Reclamation concur in the view that additional generating capacity will be needed in the area at the time power can be made available and that energy from the ultimate installation will be required in the area soon thereafter. Based on unit values estimated by the Federal Power Commission, the average annual value of the power to be generated at Fort Randall will be $11,605,000 with the ultimate installation. The power installation at Fort Randall will be connected to all major systems in Nebraska, South Dakota, and North Dakota, and through interconnections with other systems will be able to increase the power supply of such important, more distant centers as Minneapolis, St. Paul, Des Moines, Kansas City, and Wichita. Industries in the area include agricultural processing plants, ordnance plants, smelters, oil refineries, automotive assembly plants, and many other miscellaneous manufacturing plants. The installation would appear to be of particular importance because it is located in the west central area of the country which has been given considerable attention in plans for strategic dispersal of important defense industries and establishments.

Fiscal year 1956.—The requested amount of $7,860,000 will be applied to:

Complete acquisition of lands in the reservoir area	$161,000
Continue relocations	718,000
Continue seeding and planting for erosion control	82,000
Complete earthwork stage V	306,000
Complete penstocks and surge tanks	858,000
Complete regulating gate structure	233,000
Initiate additional riprapping	550,000
Continue wildlife habitat planting	38,000
Continue powerhouse, switchyard, and mechanical equipment	1,700,000
Complete turbines, generators, and governors	1,267,000
Continue procurement and construction of permanent operating equipment	282,000
Continue construction of reservoir approach roads	130,000
Continue construction of public safety and access facilities	50,000
Initiate construction of roads and lighting on the embankment and spillway	375,000
Miscellaneous hired labor and contracts	284,000
Operation and maintenance expense during construction and construction facilities	190,000
Engineering and design	175,000
Supervision and administration	461,000
Total	7,860,000

With the funds requested for fiscal year 1956, construction of the dam will be completed on schedule. By July 1, 1955, 5 power units will be in operation and the powerhouse will be advanced to a stage of construction where it will be necessary to continue operations at currently scheduled rates in order to avoid increased construction costs. The last 3 power units will be nearing completion with power scheduled to go on the line in July and November of 1955 and March 1956.

GENERATION SCHEDULE

Mr. RILEY. Will there be any delay in the generating machinery installation?

General POTTER. No, sir. Five units are on the line, the 6th, 7th and 8th units will be on the line by either December or January.

Mr. RILEY. All units will be on the line this calendar year?

General POTTER. One may slip over into January.

Mr. RILEY. You have approximately $3.5 million here in contingency reserve. Is there a possibility that some of that may be saved?

General POTTER. Yes, sir.

PICKSTOWN

Mr. RILEY. What is the situation with respect to Pickstown, a city that you own up there?

General POTTER. With regard to that and Riverdale, the situation is somewhat similar. The two States are interested in those towns not being lost to the States.

The State of North Dakota has passed enabling legislation which forms a body which can take over those parts of the town which might be available. The State of South Dakota is considering similar legislation. There is a great deal of interest in them, either State or private agencies, such as the Indian hospitals moving into Pickstown but the arrangements are at a very tentative stage at the present time.

We believe that whatever happens to this town should be done at the lowest cost to the Government. As of now, that would be in selling the buildings and having them moved away.

Mr. RILEY. Where are they, please?

General POTTER. At Fort Randall, sir, about a mile away from the end of the dam. My successor will be able to report to the committee next year as to the legislation that might be passed by the South Dakota Legislature and the intensification of the interest in maintaining this town.

Mr. RILEY. You feel there is some recovery that the Government may obtain if these buildings are declared surplus and sold to be wrecked and moved away?

General POTTER. There is a recovery to be made in that way, sir. There may be a greater recovery if they can be used in place, by some State agency.

Mr. RILEY. In that instance would the Government be reimbursed or has it been the policy to transfer to other political units such property?

General POTTER. There has never been anything done like that before as far as I know. There have been proposals with respect to Oak Ridge which have not yet been agreed to by the Congress.

Mr. RILEY. This town, of course, is far smaller than Oak Ridge. It is a similar situation, except that the Government actually operates

Oak Ridge and one other one, too, if I remember correctly. There has been some disposition to sell the properties to private interests. The Government now is in the position of landlord in both of those towns.

The question is going to arise in regard to Pickstown and Riverdale, where they have some very good structures, and if they could be used in place, of course, they would be worth a great deal more than if they had to wreck them and move them away.

Mr. PHILLIPS. Has the committee any record on the cost of operation of the community, presently?

General POTTER. Yes, sir. I might state that last year and this year the return from rentals has defrayed the cost of maintenance and operation of both towns.

Mr. PHILLIPS. Covering all costs?

General POTTER. Except amortization.

Mr. PHILLIPS. Supervision at Federal level.

General POTTER. Supervision of the town, itself, as an entity.

Mr. PHILLIPS. Do you mean you could cut it right off and it would be supporting itself?

General POTTER. Except for the fact that the Federal employees will gradually leave because of the completion of the project, sir.

COST ESTIMATES

Mr. DAVIS. Last year you offered us a saving of $3.5 million and this year you apparently took that back and another $2 million with it.

General POTTER. No; I gave you $3,485,000.

Mr. DAVIS. Last year?

General POTTER. No; this year.

Mr. DAVIS. You have reduced this just about what you told us you would last year.

General POTTER. Yes, sir.

FORT THOMPSON INDIAN AGENCY

Mr. DAVIS. How have you come along with this Fort Thompson Indian Agency problem?

General POTTER. Very well, sir. We are initiating construction, I believe, of the works; we have moved some buildings and are building some in Chamberlain. I believe that is right. We will have spent $483,000 on that particular facility, as of June 30, 1955, sir.

Mr. DAVIS. You are on schedule with your power at this station, also?

General POTTER. Yes, sir.

BENEFIT-COST RATIO

Mr. DAVIS. This information you gave us on benefit-cost ratio, which includes your ultimate power, makes me question you with respect to these others. For instance, at Fort Randall, your initial power is your ultimate power, so there is no problem with respect to that.

General POTTER. Yes.

Mr. DAVIS. Are there any of these others that we have been talking about on the main stem where there has been a change to reflect ultimate power, rather than the units that we have contemplated?

General POTTER. Oahe, which we have not yet come to.

Mr. DAVIS. You are taking the benefit of ultimate power at Oahe in figuring your present benefit-cost ratio?

General POTTER. The benefit-cost ratio at Oahe is based on the ultimate tunnels and powerhouse including the ultimate power installation.

General ITSCHNER. I might say that is not customary, and generally throughout our justifications we have used the initial installation as the basis for the benefit-cost ratio.

Mr. DAVIS. What is the reason for changing the policy in these two instances of Garrison and Oahe?

General ITSCHNER. I don't know why it was done here. It is probably because there was a substantial cost incurred in putting in the foundations and other facilities for those additional units.

General POTTER. In each case, sir, the cost of the initial power must be saddled with the ultimate installation of powerhouse and tunnels and penstocks. But at Fort Randall, sir, and Gavins Point we are putting in the ultimate installation.

Mr. DAVIS. In a case like Fort Peck, until we get your planning down on the additional power units there, we hardly know what the cost is going to be.

Here at Fort Peck you spent quite a bit of money in planning this thing. Did you know before you started the planning what it was going to cost you? Your second power unit I am talking about now.

General POTTER. We can give a very good estimate of that, sir, because hydroplants, by area, have a certain estimated cost per kilowatt.

Mr. DAVIS. It gets down to a matter of consistency. How can the same justification give us a cost figure that doesn't include the cost of the additional power units, but your benefit-cost ratio on the other hand takes all the benefit you can get from these units. Isn't that an inconsistent justification on its face?

General POTTER. Either way would be inconsistent, sir. There is no way we can give you a benefit-cost ratio based on the cost of just the facilities for the initial generation, because in building the dam you have to put in a large part and maybe the largest part of the cost of the ultimate units.

Mr. DAVIS. But your estimated Federal cost in figuring benefit-cost ratio is not the estimated Federal cost that you put in these justifications then, is it?

General POTTER. Not the ultimate, sir.

Mr. JOHNSON. The ultimate cost is used in the benefit-cost ratio.

Mr. DAVIS. But, that is not the figure you put in these justifications saying "estimated Federal cost," is it?

General POTTER. No, sir.

Mr. DAVIS. There are no jewels of consistency in these justifications, then?

General POTTER. I believe them engineeringly consistent, sir.

Mr. PHILLIPS. Did you bring with you, Mr. Johnson, a completely worked out benefit-cost estimate on these projects? Perhaps you can bring me one.

Can you show us how that comes out to 1 to 1? Would the Interior men make that for me?

General ITSCHNER. I think we can get you what you require in that matter.

Mr. PHILLIPS. Would you do that, please?

SUPERVISION COSTS

Mr. PHILLIPS. You have for supervision and administration, so much money, and for planning and designing so much money. Does that follow a formula, that it is so much percentage of the project?

General POTTER. At the beginning it is a percentage, sir.

Mr. PHILLIPS. I mean to say, does it follow the same formula through various projects?

General POTTER. Power projects would have a higher one than levees.

Mr. PHILLIPS. Would power projects at Garrison be the same as for the others?

General POTTER. Initially, yes.

Mr. PHILLIPS. When the job is completed would it be about the same for all of them?

General POTTER. No, sir; it would vary.

Mr. PHILLIPS. Vary between them or vary between the stage of process?

General POTTER. On the basis of such things as, do you have a town, for instance, as you have at Randall, compared with one at Gavins Point where we have no town.

Mr. PHILLIPS. Then these calculations are really made on the individual project in each case and not on a percentage formula?

General POTTER. Yes, sir. They are true figures as the project advances.

THURSDAY, APRIL 28, 1955.

OAHE RESERVOIR, S. DAK. AND N. DAK.

Mr. RILEY. The next project will be the multiple-purpose project, Oahe, S. Dak. Without objection, we will insert pages 113 to 115, inclusive, of the justifications in the record.

(The matter referred to follows:)

OAHE RESERVOIR, S. DAK. AND N. DAK. (CONTINUING)

Location.—Mile 1,123.4 Missouri River; in Hughes and Stanley Counties, S. Dak.; about 6 miles northwest of Pierre, S. Dak.

Authorization.—1944 Flood Control Act.

Benefit-cost ratio.—1.23 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$321,000,000	
Estimated local cash contributions	0	
Estimated project cost	321,000,000	
Appropriations to June 30, 1954	24,605,000	
Appropriations for fiscal year 1955	9,000,000	
Appropriations to date	33,605,000	10
Appropriations requested for fiscal year 1956	25,000,000	18
Balance to complete after fiscal year 1956	262,395,000	

PHYSICAL DATA

Dam:
Type: Rolled earth fill.
Height: 242 feet.
Length: 9,300 feet.
Spillway:
Type: Uncontrolled concrete ogee weir.
Capacity: 319,000 cubic feet per second.

Reservoir Capacity:	*Acre-feet*
Exclusive flood control	1, 100, 000
Annual flood control and multiple use	2, 400, 000
Carry-over multiple use	14, 600, 000
Inactive Capacity	5, 500, 000
Total	23, 600, 000

Power Installation:
Initial: 2 units at 85,000 kilowatts; 170,000 kilowatts.
Ultimate: 5 units at 85,000 kilowatts; 425,000 kilowatts.
Presently planned: 2 units at 85,000 kilowatts; 170,000 kilowatts.
Nominal head: 170 feet.

Status (Jan. 1, 1955)	*Percent*
Entire project	8
Acquisition of reservoir area	3
Relocations	0
Access road and railroad to the right abutment	100
Embankment as a whole	26
(Stages I and II complete, stage III 67 percent, stages IV, V, and VI remaining.)	
1st stage construction of the outlet works consisting of 6 intake towers and tunnels upstream from the control shafts	33
Switchyard, accessory, and miscellaneous equipment and tailrace (completed work consists of furnishing transformers, circuit breakers, etc.)	8
Powerhouse; turbines and governors; generators, stilling basin; downstream tunnels, control shafts, spillway, gates, and hoists	0
Recreation facilities, reservoir clearing and permanent operating equipment	0

COMPLETION SCHEDULE

Entire project: 1963.
Land acquisition: June 1962.
Relocations: June 1962.
Dam closure: July 1958.
Power on line (1 unit, 85,000 kilowatts), December 1961.
2d unit, 85,000 kilowatts, April 1962.

JUSTIFICATION

The reservoir will be operated as a unit in the comprehensive plan for flood control, navigation, power development, conservation, and other purposes in the Missouri River Basin. The comprehensive plan will protect Sioux City and Council Bluffs, Iowa; Omaha, Nebr.; and the Kansas Citys, Kans. and Mo.; as well as other urban and rural areas in the valley below the dams from severe floods such as those which occurred in 1844, 1881, 1903, 1909, 1915, 1935, 1942, 1943, 1944, 1945, 1947, 1950, 1951, and the record-breaking flood of 1952, and from smaller floods originating upstream which occur practically every year. Flood damages along the main stem of the Missouri River between the dam site and the mouth, from 1942 through 1953, inclusive, are estimated at approximately $550 million. The plan will afford flood protection to 1,875,000 acres of land subject to flooding between Fort Randall Dam and the mouth of the river. The Oahe Reservoir has one of the largest storage capacities of the proposed multiple-purpose reservoirs on the Missouri River. The capacity is sufficient to effect substantial reduction in the flood discharges from 59,600 square miles of contributing drainage area between that reservoir and the Garrison Dam site. At the time the capacity of the Fort Randall spillway was established, construction of the Oahe project had been initiated and was scheduled for completion within a few years following completion of the Fort Randall project. Accordingly, the Fort Randall spillway capacity was established taking into considera-

tion the protection which would be afforded by the Oahe Reservoir against major floods of unprecedented magnitude. Oahe provides the necessary storage capacity for sediments which would otherwise be deposited in the Fort Randall Reservoir to cause depletion of the limited storage available in that reservoir and is essential to the full realization of multiple-purpose benefits from Fort Randall and Gavins Point. The project will produce a large amount of hydroelectric power to supply a growing market in the adjacent area and will also benefit navigation, recreation, and low-flow regulation. The Federal Power Commission and the Bureau of Reclamation concur in the view that additional generating capacity will be needed in the area by the time power can be made available and that the ultimate installation will be needed within a comparatively short period after provision of the initial installation. Based on at-site unit values estimated by the Federal Power Commission, the power to be generated at Oahe will have an average annual value of $16,793,000. Additional important benefits will result from more dependable flood control; increase in system conservation storage for navigation and other beneficial downstream uses; increased power generation at Fort Randall and Garrison due to reduction of flood-control requirements at those projects; and from fish and wildlife and recreational developments.

Fiscal year 1956.—The requested amount of $25 million will be applied to—

Continue acquisition of lands in the reservoir area	$2,800,000
Continue relocation	1,600,000
Continue earthwork on main dam	4,400,000
Continue intakes and upstream tunnels	4,000,000
Continue downstream tunnels	3,500,000
Continue control shafts	3,200,000
Continue stilling basin	2,500,000
Continue and initiate supply contracts required for the outlet works	350,000
Initiate construction of the access road to the left abutment	150,000
Engineering and design	1,000,000
Supervision and administration	1,500,000
Total	25,000,000

The funds requested for fiscal year 1956 will permit the continuation of the construction and supply contracts required for the outlet works, continuation of the earthwork stage III contract on the right bank, and the earthwork stage IV contract in the power intake area on the left bank; initiation of earthwork stage V in the powerhouse area on the left bank; initiation of construction of the access road required on the left bank for movement of materials and equipment to the powerhouse area; continue acquisition of land and relocations required in the reservoir area and continue engineering and design, and supervision and administration of the project. The fund requirements are a conservative estimate of a construction schedule which will permit diversion with resulting silt retention and flood control project benefits and increased power benefits from the downstream Fort Randall project in 1958.

STATUS OF FUNDS

Mr. RILEY. General, I note you are asking for $25 million for this project and that is estimated to complete it to about 18 percent. What is the monetary situation at Oahe? Do you have any unobligated balances and what will be the unexpended funds at the end of June 30?

General POTTER. On March 31, the unobligated balance was $3,312,448, the unexpended balance $7,282,122. On June 30, our unobligated balance will be zero; the unexpended balance will be $2,599,000.

Mr. RILEY. In setting up your estimates for a project of this nature, what contingency reserve do you set aside?

General POTTER. The contingency reserve on this project is $18,581,000.

Mr. RILEY. That is based on the ultimate cost of $321 million; is that right?

General POTTER. Yes, sir.

Mr. RILEY. Do you reduce this contingency reserve as the project progresses, or do you leave it in the reserve until it is completed?

General POTTER. As major items are let under contract we will reexamine the contingency reserve and reduce it or increase it, depending on the bids and any unforeseen conditions which may develop as the project approaches completion. In the last year, of course, with the last appropriation, the contingency reserve will be reduced to cover only that amount necessary to pay claims that are still outstanding and for work not yet completed.

Mr. RILEY. I note you said it is increased or decreased as conditions warrant. Is the actual, practical result that it remains more or less static until the work is almost complete?

General POTTER. Generally, sir, it reduces as the project approaches completion.

DECREASE IN BENEFIT-COST RATIO

Mr. RILEY. Apparently the cost estimate of this project has increased and there has also been a decrease in the cost-benefit ratio. Could you explain why that has taken place?

General POTTER. The most important element in the decrease of the benefit-cost ratio is due to the taxes foregone being included in the annual charges. These taxes foregone for this project are $4,207,000.

INCREASE IN COST ESTIMATES

As for the increase in the cost estimate, $3,100,000 is due to the passage of Public Law 776 in the last session which added that amount for the settlement of the Cheyenne Indian claim for land; $4.5 million increase is due to increased standards on relocations over what were contemplated in the definite project report made in 1948–49. The relocation of Cheyenne Indian Reservation roads was added to the cost by Public Law 776 at an increase of $800,000; the cost of engineering and design increased $2.9 million; the price level increase is $2.3 million; and a number of other items increased the cost by $1.4 million.

Mr. RILEY. Apparently there has been a cost estimate increase of some $7 million in the 1953 fiscal year, $12 million in 1954, and $15 million in 1955. What effect will these increased estimates have on the benefit ratio?

General POTTER. They reduce the benefit-cost ratio, sir, in the proportion that those increases bear to the total cost. I might add that the price increases in past years have been entirely due to the construction cost index increase.

Mr. RILEY. What is the situation now? Are you obtaining any favorable contracts that might tend to reduce some of these estimates?

General POTTER. Yes, sir. We have let important contracts this year, one for the channels, another for the embankment on the left bank, and another for the stilling basin, which were favorable to the Government. However, such a large proportion of this project still remains to be contracted for that we feel the index should be applied to the remaining items.

BASIS OF COST-BENEFIT RATIO

Mr. RILEY. On yesterday you discussed the ratio in relation to this project where only part of the total number of power generating units are installed. Is your cost-benefit ratio based on the initial installation, or the ultimate power generating equipment?

General POTTER. The benefit-cost ratio for this project is based on the ultimate cost and ultimate installation. The major reason for that decision is the fact that so much of the facilities having to do with the ultimate installation must be installed during the time the initial project is being built. Those costs are included in the cost of the project as reported to this committee. As a matter of fact, Mr. Chairman, when we go from initial to ultimate installation, all that will be left to do will be the installation of the turbines, the generators and the part of the switchyard that pertains to the additional installation. The tunnels and penstocks will all have been put in and they are by far the most expensive part of the installation.

Mr. RILEY. So the Government will not get back some benefits unless the ultimate generating equipment is installed?

General POTTER. That is right, sir.

INCREASE IN ACQUISITION OF LAND

Mr. RILEY. I note from the planning report there has been an increase from 342,400 acres to 430,000 acres to be acquired since last year's estimate was given to us. How do you account for that difference?

General POTTER. The amount of land that the reservoir will cover is, of course, determined from maps. The amount of land we had reported to the committee in the past was based on the only maps that were available of the valley, and which were made in 1891. Of course, when we got our first money, sufficient amounts were allocated to the mapping of the valley so that better data would be available. A little over a year ago, those maps were sufficiently advanced to bring out errors between the old 1891 maps and the new and more accurate maps.

I have several exhibits here for the committee to show wherein those differences arise, and I believe it is of sufficient importance that we should look at them. On these maps, the blue represents the contour of the reservoir elevation as it appeared on those old maps. In each case of a minor tributary or drain that came off of the hills, the contours ended at that point [indicating]. You will notice in red the areas that our surveys added to the land that had to be taken, and you will notice that it generally represents small areas going all the way up the reservoir, which is about 200 miles long. You will see how important those small inaccuracies in the 1891 maps were.

As far as the quality of the land that the additions represent, it is all high benchland, useful only for grazing.

I might say, also, that because of our experience in taking land in this area and up at Garrison, the increase of some 100,000 acres results in no increase in the cost of the reservoir lands.

Mr. PHILLIPS. It is the substitution of less valuable land for the more valuable land?

General POTTER. A few dollars less in the cost per acre accounts for the difference. Our experience from our takings in the past indicate that is a very valid assumption.

Mr. RILEY. The estimate for land acquisition that you made originally was sufficient, was it, to acquire these additional acreages?

General POTTER. No, sir. We are reporting at this time there are 100,000 extra acres included in these minor draws all the way up the 200 miles of the reservoir.

Mr. RILEY. What will be the additional cost of acquiring that land over and above your original estimate?

General POTTER. Nothing.

(Discussion off the record.)

Mr. RILEY. Would you obtain any additional storage by the acquisition of these additional acreages?

General POTTER. Due to the fact that these additional acreages are in little draws that were not shown on the original maps, about 2 million acre-feet extra storage is obtained without increasing the height of the dam.

(Discussion off the record.)

Mr. RILEY. About what is the average acre cost of land in this Oahe area?

General POTTER. The average acre cost is $34 per acre.

RELOCATION OF FORT YATES INDIANS

Mr. RILEY. What is the status now of the relocation negotiations with the Fort Yates Indians?

General POTTER. The negotiations, as far as the purchase of the land is concerned, were completed as far as we could go about 2 years ago. The data resulting from these negotiations are made available to the Congress and it is my understanding that a bill has been introduced in this session to take care of their claims in this matter.

(Discussion off the record.)

General POTTER. That increase to date is due to the increased cost of the tribal lands over what had been included in our original estimate. The price for the tribal lands has been set so far by act of Congress for one tribe, the Cheyennes. The increase is not due to the increased size of the takings.

INCREASE IN ESTIMATED COST

Mr. RILEY. How much has the estimated cost of this project increased over and above the initial estimate which, I believe, was made about 1948?

General POTTER. The initial estimate of this project as reported in the original Pick-Sloan documents was an estimate for a smaller dam and at that time it was considered a Bureau of Reclamation dam. In the joint report which allocated the projects between the agencies, the project was assigned to the Corps of Engineers as were all mainstem projects. The revision in that joint report called for a high dam at Oahe rather than two low dams. The project estimated by the corps based on 1946 price levels was $158 million. Since that time, it has gone up on the cost-index basis until this year. The original estimate as it was in the Sloan plan was $72,800,000 for the single structure.

Mr. RILEY. Do you have any information as to the height of the low dam and the height of the present structure?

General POTTER. The original low dam was in the neighborhood of 100 feet high. This one is 242 feet high. It is about as high as the summation of the other two low dams.

Mr. RILEY. And the present estimate of cost is approximately twice the original estimate, due to the factors you just mentioned?

General POTTER. The cost index has increased since 1945. May I also add that the $72 million in the first estimate was based on 1940 price levels.

Mr. RABAUT. General, in regard to this dam, of necessity the foundations would have to be much heavier for such a high dam.

General POTTER. Much wider, sir.

Mr. RABAUT. And requiring a great deal more construction. It would not only be the height that would add to the cost, but the width and everything else?

General POTTER. Yes, sir. The slopes are much flatter than the original plan proposed.

Mr. RABAUT. Then you have a deficiency in cost from the 1940 level to the present level?

General POTTER. Yes, sir.

Mr. RABAUT. And what were those two cost estimates?

General POTTER. $72.8 million was the single low dam, and for the present plan it is $321 million.

FREQUENCY OF FLOODS

Mr. MAGNUSON. General Potter, apparently the frequency of floods in this area has increased greatly since about 1942; is that right?

General POTTER. The drought ended in 1941. Prior to 1941 there were 11 years of drought with very little flooding. From 1941 until 1953 floods came almost every year, some of them almost floods of record. I refer specifically to the floods of 1943, 1947, and 1952, which is the largest of record.

Mr. MAGNUSON. Before 1942, they had been running at periods from 40 years to 20 years apart, and from 6 years back to 20 years apart. What were the factors involved? It was something besides rainfall, of course, that stepped up the frequency of the floods?

General POTTER. I think I can best explain, Mr. Magnuson, by saying that the average annual flow of the Missouri River past Sioux City, which is at the lowermost end of the main-stem dams, is historically 26 million acre-feet a year. During the drought it got as low 1 year as 11 million acre-feet a year. That would show a measure of the less frequent floods that we had during the drought. Now it has been as high past Sioux City as 35 million acre-feet a year, I believe. That indicates a very severe floodtime.

Mr. MAGNUSON. Was that in 1952?

General POTTER. In 1952, I believe, it was in that neighborhood. 1943 was a bad one and 1945 and 1947 were bad ones.

This plan when completed will level that flow past Sioux City to a constant amount practically every year. There was also a 35 million acre-foot flow in 1881.

Mr. MAGNUSON. It is not our tampering with the river up above that is causing almost annual floods down below, is it?

General POTTER. Only the Good Lord can put water out of the heavens, sir; we cannot do that.

BENEFIT-COST RATIO

Mr. DAVIS. If I recall what you told us yesterday correctly, General Potter, in this instance the benefit-cost ratio figure you have been giving us covers only two units of power installations; is that correct?

General POTTER. I corrected that testimony. This benefit-cost ratio is based on the ultimate installation and ultimate cost. The cost and appropriation data before you represent only the cost of the installation of the first generators.

TOTAL COST OF PROJECT

Mr. DAVIS. What is your estimate of the cost of the additional three units for the ultimate power?

General POTTER. I would say about $35 million.

Mr. DAVIS. Actually, then, this becomes pretty close to a $360 million project when you get the ultimate power?

General POTTER. Yes, sir. You understand, Mr. Davis, that the time those later units are scheduled is determined by power studies and analyses by the Federal Power Commission. When the determination has been made and the units scheduled, then they are budgeted.

Mr. DAVIS. What assurance can you give us as to the firmness of the figures you have given us this year? We have had the figures on this installation fluctuating so much in recent years that it casts a doubt on the firmness of the figures we have now.

General POTTER. The original Bureau plan for this dam called for 150,000 kilowatts as the amount of power to be generated. It is now 425,000 kilowatts. In view of the increased storage, the fact that irrigation requirements will be less and somewhat delayed, more power can be generated than we presently plan.

Last year the appropriation indicated a go ahead on this project as against very slow progress in years past. In analyzing the cost of the project, it became obvious that we should do a complete engineering study of this dam in all of its features. That had been done in 1948 in the definite project report, but new facts showed it should be brought up to date. That study is not yet completed, but it is sufficiently completed, Mr. Davis, for me to feel at this time that the ultimate installation which we now believe might be 6 units—and 6 have been requested by the Federal Power Commission who are the determinants in those matters—that the cost will not be any greater for the ultimate installation than you have just calculated, and perhaps will be less. That statement can be made because of refinements in engineering that have been made, the good bids we have been getting and our much better knowledge of the foundation than we had a year and a half ago. You perhaps know that we have opened up a considerable area of this foundation and have very intimate knowledge of its characteristics, which we did not have before.

Mr. DAVIS. Following the course of the basin, about how far is that from the head of the basin up near Mandan, N. Dak., down to the site of the dam?

General POTTER. 250 river miles.

Mr. DAVIS. And the height of this dam is 242 feet?

General POTTER. Yes, sir; that is the maximum height.

Mr. PHILLIPS. This reservoir was approved in 1948?

General POTTER. No, sir. It was authorized in 1944 as a unit of the Pick-Sloan plan.

Mr. DAVIS. That means it has been 11 years in construction and you have finished 8 percent of it?

General POTTER. We got our first appropriation for this dam in 1948.

Mr. DAVIS. Seven years, then—1 percent a year. Are you going to finish in 1963 at that rate?

General POTTER. Last year the appropriation was $9 million. The appropriation requested this year is $25 million, and appropriations will be requested on schedules that will lead to closure in 1958 and the first power in 1961.

COMPLETION SCHEDULE

Mr. DAVIS. Will you explain your completion schedule now? You plan to complete the entire project in 1963 and to complete the land acquisition in 1962, 1 year before completion?

General POTTER. Yes, sir.

Mr. DAVIS. Are you going to close the dam in 1958 before you acquire the land?

General POTTER. The first land to be obtained is that part to be flooded first and then the upper reaches are obtained just as was done at Garrison and Fort Randall. Land acquisition is still going on at Fort Randall even though we started to acquire the land in the pool in 1952.

Mr. DAVIS. I suggest that the delay in acquiring lands would make it cost the Government more money than it should. Have you filed on it at all, or is this a matter of a condemnation proceedings?

General POTTER. We try to and have been quite successful in 80 percent of the cases in purchasing by agreement—appraisal, offer, and agreement; but the rest of it has to go to court.

Mr. DAVIS. I am thinking about the price of the land. If you buy land over a period of 14 years, you are going to pay more for the last few years' purchases than you will for the first.

General POTTER. The program of land acquisition is generally planned over the life of the project, so that we do not build up a large appraisal force and do not overload the cases in the courts.

Mr. DAVIS. Do all of those cases have to go to court?

General POTTER. No, sir; only those where we cannot come to an agreement—about 20 percent of the cases.

NAVIGATION—SIOUX CITY TO MOUTH

Mr. DAVIS. Now will somebody help me find out how much of the Missouri we are talking about is open to navigation, and the sort of navigation, and something about the financial returns from it?

General POTTER. The navigation project is authorized from Sioux City to the mouth. That is the part shown in color there.

Mr. DAVIS. There is no navigation above that?

General POTTER. There is no authorized project above that. At the present time, there is hardly any, if any, navigation above Omaha.

Mr. DAVIS. Of course we are talking about commercial navigation.

General POTTER. Yes, sir.

Mr. PHILLIPS. Aren't you crossing over the river?

General POTTER. The lowermost point is Gavins Point.

Mr. PHILLIPS. Down across the river?

General POTTER. Yes, sir.

Mr. PHILLIPS. How far is that from Sioux City?

General POTTER. From Sioux City it is about 75 or 80 river miles, sir.

Mr. PHILLIPS. What sort of river traffic is there from Sioux City down?

General POTTER. Very little if any from Sioux City to Omaha up until now.

Mr. PHILLIPS. Small barge traffic?

General POTTER. Yes, sir. From Omaha to the mouth there is regular river traffic, thousand-ton barges, towboats at present at 1,800 horsepower. There is one now almost finished with 3,500 horsepower specifically made for operation on the Missouri River.

Mr. PHILLIPS. No locks of any kind?

General POTTER. Open river navigation, sir.

Mr. PHILLIPS. What is the economic value of that to the country or to the area at large?

General POTTER. I think I can best explain that, sir, by saying that the project is based on an ultimate 5 million tons 20 years after completion.

Mr. PHILLIPS. When you say the project you mean all of this?

General POTTER. The navigation project from Sioux City to the mouth, sir.

Mr. PHILLIPS. 5 million tons?

General POTTER. Within 20 years after it is completed. It is not completed but I believe the 5 million tons will come in within the next 5 years.

Mr. PHILLIPS. I presume you took that into consideration in the benefit-cost ratio?

General POTTER. The justification is based on the figures I gave.

Mr. PHILLIPS. In order to reach the benefit-cost ratio you would have to wait 20 years?

General POTTER. Theoretically, sir. I think it will come within 5 years from now, even though we have not finished it and even though we have not 9-foot navigation as yet.

On that basis the navigation is based on a B-C ratio of 1.55.

Off the record.

(Discussion held off the record.)

ACQUISITION OF INDIAN LANDS

Mr. PHILLIPS. You spoke of tribal funds. Do you get money from any of the Indian funds for any of that work on the basis of the benefit to the Indian lands?

General POTTER. Each time we have taken Indian lands, and I believe this applies across the United States for this type of project, sir, a special bill has been passed by the Congress that reimburses

the Indians not only for their land but for the disruption of their economy, tribal practices, and other such considerations.

Mr. PHILLIPS. But the Indians have not paid any part of the costs of this from tribal funds on the basis that it is of benefit to them.

General POTTER. Oh, no.

Mr. PHILLIPS. Why do you say, "Oh, no" with such emphasis?

General POTTER. Because they have received a lot of money for their land, sir. To give you an idea, sir, this bill which just passed on the part of the Cheyennes, provided for ultimate payments of $3 million plus payments to the Indians for rehabilitation; the land was appraised at $1,600,000.

Mr. PHILLIPS. Then none of this development actually includes the value of their lands?

General POTTER. No, sir.

Mr. PHILLIPS. As it would if it were a reclamation project?

General POTTER. That is right.

ESTIMATED COST OF THE PROJECT

Mr. PHILLIPS. I come back again to the last matter being discussed between Mr. Davis and yourself, General, on the estimated Federal cost. You now show on this particular project, which I am using only because we have been talking about it, $321 million as an estimated Federal cost, but you testified yesterday that that is not necessarily the total cost.

General POTTER. That is right.

Mr. PHILLIPS. That is merely an estimate at the moment of the amount you expect to spend under existing authorizations or budget appropriations?

General POTTER. To put in the initial power installation only, sir.

Mr. PHILLIPS. But that when you build up the benefit-cost ratio you include what you believe will be the total cost of the project?

General POTTER. Total cost and total power, sir.

Mr. PHILLIPS. Would it be out of order to suggest this is a fictitious figure?

General POTTER. It is not, sir; because so much of the initial power installation—the tunnels, penstocks, powerhouse, powerhouse foundation, tunnels leading to the switchyard, are features that will be used in the ultimate installation—are built as part of the initial installation and reported in this cost of $321 million, sir.

Mr. PHILLIPS. That still is not the total cost.

General POTTER. It is still not the total cost, but if you figured the benefit-cost ratio on the initial power it would be saddled by the amortization and interest on elements which will not come in until future years.

Mr. PHILLIPS. But in order to get a benefit-cost ratio you do put these other elements into it. That was testified to yesterday.

General POTTER. Yes, sir. The benefit-cost ratio is based on the ultimate cost.

Mr. PHILLIPS. But it looks better coming to an Appropriation Committee to put in the lower figure?

General POTTER. Sir, there is nothing held back. That fact is reported in our planning report, which is a report specifically designed to give full information to this committee, and also in the justification sheets.

Mr. PHILLIPS. Where in the justifications?

Mr. COHEN. On page 113. It states presently planned in the second line from the bottom under "power installation," sir.

Mr. PHILLIPS. There is no evidence there as to how much it will cost, added to the $321 million.

When did we change the system and put down a figure of $321 million instead of the actual cost we estimated, for example, in this case? We haven't been doing that forever.

General POTTER. To my knowledge we have done it that way, at least since I first came to the Chief's Office in 1949, sir.

If the committee desires it reported——

Mr. PHILLIPS. I certainly think as one member of the committee that that is close to being a fictitious figure.

I do not think it is intentional, but just recent custom.

Here you place before the committee a figure which states, "Summarized financial data, estimated Federal cost, $321 million."

Actually estimated financial cost is not $321 million but $321 million plus 2 units at 85,000 kilowatts, 170,000 kilowatts, which you expect to add sometime in the future and which are part of the project.

So if you have to have it for some budgeting reason, why don't you add another line there and say "Estimated total cost, cost of complete, entire project as planned, so many dollars."

General POTTER. That could be done.

Mr. PHILLIPS. And then on the basis of the previous system of estimating costs, state $321 million.

General POTTER. You must realize that until the Federal Power Commission says there is a market for the extra power, when we get the $321 million, so far as we are concerned that project is finished.

Mr. PHILLIPS. You did not put any contingency on your statement down here which states, "Presently planned, 2 units at 85,000 kilowatts."

General POTTER. Those 2 units of 85,000 kilowatts equals 170,000, sir.

Mr. PHILLIPS. I just register the opinion as one member of the subcommittee that that is not the complete information.

General POTTER. It was with no thought of trying to conceal anything.

Mr. PHILLIPS. I certainly recognize that. But I think if you go back into the dim past, you will find there was a time when the corps reported what they estimated to be the complete cost of the project, and I think that is evident from the fact that in setting up your benefit-cost ratio you used the complete figure.

General POTTER. We did; in the benefit-cost ratio; yes, sir.

Mr. PHILLIPS. There is no argument. If you use it, why don't you put it down?

Anyway, that is just a suggestion.

IRRIGATION

I have only one question about Oahe, and I will have to ask this of the irrigation representatives.

Is it not a fact that Interior has been considering an irrigation project up in that area?

General POTTER. That is a fact, sir.

Mr. PHILLIPS. Wasn't it found to be questionable?

General POTTER. No, sir. Last year they appointed a board of three very high ranking consultants to examine the feasibility of the project based on the extensive information they had.

I have not seen the report, of those three consultants but I understand it is favorable.

Mr. CROSTHWAIT. Our investigations on that project are still being conducted. We have not completed them.

Mr. PHILLIPS. It has not turned out to be a very favorable report on the basis of a feasible project, has it?

Mr. CROSTHWAIT. The investigation is not completed and I don't think we can answer whether it will be feasible until that investigation is completed.

Mr. PHILLIPS. I was under the impression that the initial findings were not particularly satisfactory.

Mr. CROSTHWAIT. You may be correct in that, Mr. Phillips.

Mr. PHILLIPS. Is there any relation between the work the corps is doing in that area and the possibility of an irrigation project?

General POTTER. The storage at Oahe, Mr. Phillips, provides for, I believe, 2½ million acre-feet for ultimate irrigation draw down annually.

Mr. PHILLIPS. Are you testifying in effect that you are going ahead and building a big reservoir with 2½ million acre-feet when Interior could not find that this is a feasible project for the irrigation district into which that water would be poured.

POWER

General POTTER. I had not heard it was infeasible, and in the event there is no irrigation developed, the water can be used for power.

Mr. PHILLIPS. How much power are you getting?

General POTTER. 425,000 kilowatts.

Mr. PHILLIPS. Does that include the additional 170,000 you say is originally planned?

General POTTER. Yes.

Mr. PHILLIPS. I now get an analysis of your figures. When you say "ultimate 425,000" you mean ultimate plus——

General POTTER. Ultimate is total, sir.

Mr. PHILLIPS. Or do you mean the ultimate including the post-ultimate element of 425,000?

General POTTER. When all units are in, there will be a total of 425,000 kilowatts.

Mr. PHILLIPS. How much power can you distribute in that area on this basis? Can you use all that water for power and distribute it at a profit even if they don't draw any off for reclamation?

General POTTER. The present information from the Federal Power Commission is that the initial installation of two units will be required at first.

Mr. PHILLIPS. What does the corps have to do with any decisions on the question of the feasibility of the reclamation project for which you are setting up 2½ million dollars reserve?

General POTTER. Nothing, sir.

IRRIGATION FEASIBILITY REPORT

Mr. PHILLIPS. When will the report of the Interior Department be ready?

Mr. CROSTHWAIT. We have in our estimate for this year some $375,000 to continue work on that report, and as to just when it would be completed I will have to supply that information for the record.

(The following information was subsequently supplied:)

The preliminary report is due in 1957 and the final report in 1959.

Mr. PHILLIPS. When is the decision to be made, or when will it be necessary to make it, as to whether or not you are to construct intake, pumphouse, and so forth, for irrigation which would be part of the general's project?

General POTTER. That will be a separate feature of the project.

Mr. PHILLIPS. A separate function?

General POTTER. Yes, sir.

Mr. RABAUT. Off the record.

(Discussion held off the record.)

CONSTRUCTION TIMING

Mr. PHILLIPS. Coming back to this matter of when you have to make decisions, I do not know whether I would go quite as far as you do, General. Somewhere in there you have to fill this pool up with water.

General POTTER. Yes, sir.

Mr. PHILLIPS. You have to make your decision before that as to the various things, such as intake, pumphouse. You will not run the water out and build the pumphouse later?

General POTTER. No, sir. The powerhouse will be built as reported to this committee, I think, next year.

Mr. CROSTHWAIT. Our records show that our preliminary report is due in 1957 with a final report in 1959.

Mr. PHILLIPS. The Corps will build the pumphouse next year?

General POTTER. That is an irrigation feature, sir.

Mr. CROSTHWAIT. That is the irrigation feature.

Mr. PHILLIPS. You will not decide until 1957 whether you need them. Is that right?

Mr. CROSTHWAIT. The pumphouse, the pumping facilities for irrigation will be built by the Bureau. That is my understanding.

Mr. PHILLIPS. You are going to build them before the reservoir is full?

General POTTER. Sometimes irrigation water is taken from below a structure, sir.

Mr. PHILLIPS. You do not think there is any conflict in time?

General POTTER. No, sir.

At Garrison, sir, we have not yet started on the construction——

Mr. PHILLIPS. Show me on the map how you will do it at Garrison, or at Oahe, where you will take it from below the reservoir.

General POTTER. It is not known, sir, as yet.

Mr. RILEY. I understand the corps does not build the irrigation pumps.

General POTTER. At Garrison we are building the pumphouse, the first element. Everything else is to be built by the Bureau.

At Oahe the facilities for taking water out for irrigation have not yet been decided.

But, Mr. Phillips, this reservoir will not be filled until sometime around 1965.

Mr. PHILLIPS. In other words, your point is that no matter what the Interior Department decides or when they decide it, on the schedule which has been announced today they will still be able to decide whether to build the pumphouse, and other items we mentioned, before you get too much water in the reservoir?

General POTTER. Yes. There will be plenty of time, sir.

ADEQUACY OF WATER SUPPLY

Mr. DAVIS. On that point, don't you have to know whether this water will be diverted from the reservoir for the irrigation project before you can decide whether it is desirable to install the sixth unit?

Mr. PHILLIPS. You wouldn't have water enough for the sixth unit if they take the water for reclamation.

General POTTER. The Federal Power Commission has always said we should have six units there. Our decision was five at the time this particular definite project report was made, sir.

Assuming the possibility there might be enough water for seven units, the time we propose to let the contract for the tunnels is when, Mr. Johnson?

Mr. JOHNSON. I believe, sir, about 1958.

General POTTER. And by that time a decision will be made.

Mr. PHILLIPS. Suppose that Interior decides this is a feasible project, and the Government goes ahead and constructs it? They will take 2½ million acre-feet of water.

General POTTER. Or some lesser amount.

Mr. PHILLIPS. If they take million acre-feet of water you cannot run it through and use it again. You can use the water on a lower reclamation project. You will not have the water to make power.

General POTTER. Well, we are fairly sure that we have enough for six units now, sir.

Mr. PHILLIPS. Even with reclamation?

General POTTER. Yes, sir.

Mr. PHILLIPS. That would not be firm power because the river will not flow that much water regularly that you can depend upon that for firm power. Is that right?

General POTTER. Let us say that the irrigation demand will be 1 million acre-feet less. Then that water is firm water.

Mr. PHILLIPS. Is it that consistent a flow?

General POTTER. It would be if stored, sir.

Mr. PHILLIPS. But to get 7—when you get up to 7 you get away from firm power?

General POTTER. Depending on the water used for irrigation, but that decision has not yet been made, sir, and cannot be made until Interior finishes their studies.

Mr. PHILLIPS. And that will be 2 years from now?

General POTTER. Which still will be time for these tunnels. It will take approximately 2½ or 3 years to build those tunnels.

Mr. PHILLIPS. Can you properly call it firm power or do you call a certain amount of it surplus power on the basis that you may or may not have it? Would you like to change your wording?

General POTTER. I said firm water, sir, not firm power.

Mr. PHILLIPS. We are talking about firm power produced by water which may not be used for other purposes or may be used for other purposes. You could not sell it as firm power.

General POTTER. The use of that power is predicated on demands by the Department of the Interior, of course.

Mr. PHILLIPS. Yes, and also predicated on demands according to the condition of the river. You testify that you are certain enough of a continuous flow of the river, protected by the possibility of maintaining that good consistent flow, and you can therefore sell firm power to the people who buy from those particular plants. That is a pretty strong statement.

Mr. JOHNSON. In our reservoir operation studies of adequacy of water which you had before you yesterday and the day before, we assumed that the irrigation depletions were taken out before any other requirements were met, and on the main stem the irrigation requirements were met each year.

Mr. PHILLIPS. Would the Interior Department agree that adequate depletion has been allowed for on all these estimates?

General POTTER. The Interior Department took part in this study, sir. This is a joint study on water adequacy. You will note it was prepared by the Interagency Committee.

Mr. PHILLIPS. We just happen to have a little matter before the Supreme Court of the United States involving estimates on depletion and evaporation, whether or not they were accurate. It is not always a completely sure estimate.

BENEFIT-COST RATIO

Mr. RILEY. General, when these projects are presented to the authorizing Committee of Public Works, they are presented on the cost-benefit relationship of the ultimate installation of power. Is that right?

Mr. JOHNSON. Mr. Riley, at the time these projects were presented to the authorizing committee, they were presented on the basis of Senate Document 247 which coordinated the plan. The benefit-cost ratios in those reports, to the extent that they were included, were based on the ultimate installation.

However, Senate Document 247 indicated that the size of the reservoirs and the size of the power installations would be determined mutually by the two agencies.

AUTHORIZED SIZE OF PROJECT

Mr. RILEY. And this particular project was authorized for five generating units?

Mr. JOHNSON. This project was authorized on the basis of House Document 191, the Bureau of Reclamation's plan, which provided for 150,000 kilowatts as the ultimate installation.

Mr. RILEY. But you do have the authority to revise that estimate and put in the additional generating units if you find it is feasible?

Mr. JOHNSON. That was the language in Senate Document 247, sir.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. PHILLIPS. What is this I have here now, General? It is called Missouri River main stem reservoir operation, Corps of Engineers, Office of the Division Engineer, 1953.

Do you recognize that?

General POTTER. Not specifically, sir.

(Discussion held off the record.)

POWER PRODUCTION AND PEAKING CAPACITY

Mr. PHILLIPS. Here on sheet 6 I have your estimated power production average and the peaking capacity capability at Oahe. I am not sure that that supports your testimony, General.

Here is what I would call firm power, and it is the only firm power you can depend upon. That is the lowest point.

During the different months of the year where you have the type of climate you have out here you will not be able to put the water down because you will not have it.

Interior has to sell that water either at a lesser price or they have to sell it as supplemental or surplus power. They cannot sell it as firm power which a customer can depend upon. Is that right?

General POTTER. About half the power to be produced on the main stem is dump power. It is so recognized, and I presume it will be sold in that manner.

Mr. PHILLIPS. You see, I am getting a confused picture. It is a picture of the expenditure of a great deal of money to secure flood control and a reservoir which contains 2½ million acre-feet of water which you may or may not use on reclamation land, depending upon a decision which the Interior Department will make 2 years from now as to whether it is feasible to put in an irrigation project.

If they use the water for the irrigation project then you will not have the water to make possible the production of current from two additional plants, certainly not from the third additional plant.

That being the case irrigation will not have the power to sell upon which they depend to pay for the irrigation project as well as the construction of your project.

General POTTER. Repayment, sir, is predicated on a study such as you have there before you.

Mr. JOHNSON. Those studies and the data in our justification sheets are based on the assumption that that water is taken out of the reservoir and not to be used as power.

Mr. PHILLIPS. On that basis you can deliver firm power at the point shown in your own chart here and to a certain extent what you call peaking capability on this point?

Mr. JOHNSON. Depending on the load factor, sir.

Mr. PHILLIPS. When do they use it?

Mr. JOHNSON. It depends to some degree on the load factor.

Mr. PHILLIPS. The time the peak comes on the load?

Mr. JOHNSON. Yes, sir.

Mr. PHILLIPS. I don't know whether we know what they are building up there or not.

Mr. RABAUT. Off the record.

(Discussion held off the record.)

Operation and Maintenance, Corps of Engineers

Mr. Riley. We move along now to "Operation and maintenance in the Missouri Basin." Without objection we will insert pages 133 through 137 into the record at this point.

(The matter referred to follows:)

Missouri Basin

JUSTIFICATION OF ESTIMATE

1. Navigation

(a) *Channels and harbors.*—The work proposed to be accomplished under this activity consists of maintenance of dike and revetment works to maintain control of the channel and channel dredging; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing conditions; all as authorized in the laws adopting the projects.

The budget estimate of $6,090,000 for fiscal year 1956 is required to stabilize the banks of the Missouri River in order to afford protection to the agricultural levees and locally owned farm levees, permit the construction of levees under flood control authorization, in the interest of navigation and the protection of other valuable properties against loss erosion. The project has been subjected to an economic analysis and it was determined that continuing maintenance is justified. Commerce on the river is increasing at a substantial rate. During calendar year 1954 the net total traffic, exclusive of Government materials was 123,605,000 ton-miles, an increase of 107 percent over 1953. Commerce during 1954 included the movement of about 100,000 tons to Omaha. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified work and has resulted in a substantial backlog of dike and revetment work. This condition continues to exist particularly in the river above Omaha which has essentially reverted to its original wild state.

Tentative allocation, fiscal year 1956

Iowa: Missouri River, Kansas City, Mo., to Sioux City	$3, 290, 000
Missouri: Missouri River, mouth to Kansas City	2, 800, 000
Total, channels and harbors	6, 090, 000
Total navigation	6, 090, 000

2. Flood control

(a) *Reservoirs.*—The budget estimate of $325,300 provides for the operation and ordinary maintenance of 4 Corps of Engineers flood-control reservoirs including nondeferrable rehabilitation work, and for the scheduling of flood-control-reservoir operations at 14 Bureau of Reclamation reservoirs in the Missouri Basin during fiscal year 1956. The Corps of Engineers in carrying out scheduling activities is responsible for the collection, transmission, and analysis of hydrologic and weather data, the forecasting of seasonal flows, the maintenance of continued liaison with owning agencies and operation reporting. The amount requested in fiscal year 1956 is approximately $80,000 less than the amount available in fiscal year 1955, and is the minimum necessary for adequate and efficient operation and maintenance and flood-control scheduling of these projects.

Tentative allocations, fiscal year 1956

Colorado: Cherry Creek Reservoir	$33, 000
Kansas: Kanopolis Reservoir	80, 000
Nebraska: Harlan County Reservoir	80, 000
South Dakota: Cold Brook Dam (Fall River Basin)	7, 000
Scheduling of flood-control-reservoir operations	125, 300
Total flood-control reservoirs	325, 300

(b) *Other (including channel improvement projects, miscellaneous maintenance items, and inspections).*—The budget estimate of $38,000 provides for the minimum requirement of regular maintenance on completed structures in the Missouri River, Kenslers Bend to Sioux City, Iowa, project and for inspection of 36 completed projects or project units within the basin.

Tentative allocation, fiscal year 1956

Iowa: Missouri River, Kenslers Bend to Sioux City, Iowa	$30,000
Inspection of completed works	8,000
Total flood control, other	38,000
Total flood control	363,300

3. Multiple-purpose projects, including power

The budget estimate of $1,194,000 for the operation and maintenance of 4 multiple-purpose projects in the Missouri Basin during fiscal year 1956 is the minimum amount necessary for operational requirements. It contemplates deferment of other than indispensable ordinary maintenance and rehabilitation work. As additional construction features on 3 of the projects are being completed and placed in maintenance status in fiscal year 1956, the amount requested is an increase of approximately $444,000 over the total available in fiscal year 1955. This increased amount includes $65,000 for the initial operating requirements of 1 project under construction which will have completed features reaching maintenance status; approximately $327,000 for the increased operation and ordinary maintenance needed at 2 projects approaching completion; and approximately $52,000 for urgent rehabilitation work at the older project.

The completion of power-generating facilities at these projects will add 360,000 kilowatts of installed capacity during fiscal year 1956, more than doubling the total capacity of all Corps of Engineers multiple-purpose projects in the Missouri Basin to a total of 645,000 kilowatts.

Tentative allocation, fiscal year 1956

Montana: Fort Peck	$354,000
Nebraska: Gavins Point Reservoir	65,000
North Dakota: Garrison Reservoir	249,000
South Dakota: Fort Randall Reservoir	526,000
Total multiple-purpose projects including power	1,194,000
Grand total, Missour Basin	7,647,300

BASIS FOR ESTIMATES

Mr. RILEY. General, do I read the estimates correctly, that it takes $7,647,300 for the whole Missouri Basin, and the multiple-purpose projects, including power, will take $1,194,000?

General POTTER. Yes, sir.

Mr. RILEY. How are these tentative amounts which you have listed for the various projects arrived at?

General POTTER. For the dams and reservoirs, Mr. Riley, they are based on the staffs of those dams and reservoirs to accomplish the purposes of the dams or reservoirs.

For a reservoir such as Fort Randall, which is still under construction, and where they have a large construction force present, only those personnel charged to the operation of the powerhouse and the activities and completed work is requested for in this appropriation.

For the river the amount which are included——

Mr. RILEY. That is the bank-stabilization program?

General POTTER. And the navigation program, sir.

Mr. RILEY. Yes.

General POTTER. Those amounts are based on constant examination of the structures which are in. We make up a schedule to keep them in at least minimum average condition so that we do not start to lose some of the structures which are already in.

INCREASES AND DECREASES

Mr. RILEY. Has there been any increase in the maintenance and operation estimates on the multiple-purpose projects?

General POTTER. Oh, yes, sir, there has been. For instance, for Fort Randall in 1954 the maintenance and operation budget was $212,946, but we have put more units on the line and have gone into maintenance and operation of those which raises this year's budget to $526,000.

On the other hand, the river budget has decreased since 1954 by close to $800,000.

Mr. RILEY. The costs for maintenance and operation on all of these projects will gradually increase until they get to the maximum capacity?

General POTTER. After a project is completed it will be on a level basis, sir.

Mr. DAVIS. These are tentative allocations which are subject to reallotment from time to time on the basis of need within the Office of the Chief of Engineers?

General POTTER. That is right, sir.

Mr. DAVIS. In your work as division engineer for the Missouri Valley Division, have you had to make any significant reallotments in the current fiscal year from those submitted to the committee last year?

General POTTER. No, sir.

Mr. DAVIS. These amounts which have been requested here are actually in 2 parts, 1 part above Kansas City, and the other part below Kansas City. How do they compare with the amounts that were allotted for the current fiscal year?

General POTTER. These amounts are less than we will have had this year when the year is finished.

Mr. DAVIS. Which would be contrary to the construction currently going on, but in the general situation you anticipate the more structures you have in operation, the greater the maintenance and operation cost will be; is that correct?

General POTTER. Yes; Mr. Davis, but after the war there was a considerable amount of what we call deferred maintenance that had to be caught up. We have not caught up yet with all of that, Mr. Davis. We are getting closer to the end of it, and many of those structures which were in bad shape at the end of the war and were severely damaged in the 1952 flood are getting back into good shape.

ALLOCATION OF FUNDS TO PROJECTS

Mr. DAVIS. May I ask you, General Potter, to tell us how the tentative allocations for reservoirs listed on page 134 of the justifications compare with your current available funds or allotments in the current fiscal year?

General POTTER. At Fort Peck, sir, the requested allotment is about what we got this last year, slightly less.

For Gavins Point the funds listed are the first requested for this project under "Operation and maintenance."

For Garrison it is $1,000 less.

For Fort Randall it is $200,000 more.

I made one mistake there, sir. On Garrison it is about $128,000 more, due to the fact that our construction of the project is nearly completed and power will be on the line this year.

MAINTENANCE AND OPERATION OF RESERVOIRS UNDER CONSTRUCTION

Mr. DAVIS. Generally speaking, General, what is involved in your maintenance and operation of a reservoir that is under construction, such as Gavins Point?

General POTTER. Well, parts of the project are finished, sir. The maintenance of the parts finished, or which will be finished this year, is not charged to the construction of the new work.

Mr. DAVIS. Well, give us some specific illustrations of that.

General POTTER. Mr. Johnson, can you give some illustrations of that?

Mr. JOHNSON. Mr. Davis, Gavins Point Dam will be closed in July, and after that time the spillway gates will have to be operated regularly to control the releases from Fort Randall, and that money will be used for that purpose.

Mr. DAVIS. Will you give us about the same kind of a rundown, General Potter, with respect to the flood control reservoirs which are listed on page 134?

General POTTER. Yes, sir.

Cherry Creek, sir, is a finished structure. We have two people resident on that dam. It is purely for flood control. There is the job of maintenance of the structure, the mowing of the earth embankment and the cleaning of the gates and the normal housekeeping of the structure.

Harlan County Dam is also finished, as is Kanopolis, and in both places we have an enormous number of visitors each year. There is the job there of maintaining the structure, the gates and the roadways, and that sort of thing.

Cold Brook Dam is largely under the control of the State. The only moneys requested there are for the district and division offices in connection with the operation of that project.

Mr. DAVIS. Now, where is this scheduling of flood control operation and maintenance done, in your office?

General POTTER. Yes, sir; in my office. That is that reservoir control center I told you about, sir. The people that do that, Mr. Davis, are the people who will make a success out of the operation of this flood control operation.

There is one item which is not shown. It is included in Fort Peck. For the first time since the project has been completed we propose to examine the tunnels this year.

Mr. PHILLIPS. How old are they?

General POTTER. They went into operation in 1938, sir.

SERVICES OF GENERAL POTTER

General POTTER. This will be my last appearance before you gentlemen. I will be leaving my present assignment this fall. Every time I come over here I think I know how to do it but I find that I do not.

Mr. PHILLIPS. Where are you going to go?

General POTTER. I guess I will become a solider again. I do not know.

Mr. RILEY. General Potter, since this will probably be your last appearance before this subcommittee, may I say that we regret very much seeing you leave this work. You have shown a very fine grasp of the situation. You have made an excellent witness before the committee, and you have been most helpful to us in your presentation and in working out this great problem.

The committee wishes to extend to you its thanks for your cooperation and for the very efficient manner in which you have handled these projects.

General POTTER. Thank you very much, sir.

Mr. RABAUT. And may I add that General Potter is a man who knows his subject perfectly.

Mr. MAGNUSON. I would like to say that I have been very much impressed by General Potter's knowledge of his projects out there, and I think he has been an excellent witness.

General POTTER. I wish to thank the whole committee and its staff, who have made this job worthwhile, I will tell you that.

Mr. DAVIS. We are afraid that the Missouri will shed some salt water over no longer being in such tender and enthusiastic hands as it has been in for the last several years.

General POTTER. And you gained enthusiasm too, did you not?

Mr. DAVIS. I certainly did.

Mr. PHILLIPS. General, I am sorry that you are leaving just when I am beginning to get a first class education on the Missouri River.

General POTTER. You cannot really get it, Mr. Phillips, until you start to come out there, and then you will be like some of these other gentlemen in wanting to give me much more money than I already have.

Mr. PHILLIPS. A Pennsylvania Dutchman wanting to give away money?

CONSTRUCTION AND REHABILITATION, BUREAU OF RECLAMATION

RECLAMATION FUND

Mr. RILEY. When the repayments are made on these irrigation projects, does that money go into a special fund, or is it returned to the Treasury?

Mr. GOLZÉ. Mr. Chairman, under the Reclamation Act and what is known as the Hayden-O'Mahoney Act, which was passed about 1938, all revenue from reclamation projects goes into the reclamation fund with the exception of revenues from Boulder Canyon project and the Fort Peck project, Montana.

Mr. RILEY. How is that money disbursed from the reclamation fund? Is that by authorization of Congress, the Secretary of the Interior, or how?

Mr. GOLZÉ. On the authorization of the Congress by appropriation.

Mr. RILEY. It does come back to Congress for reappropriation?

Mr. GOLZÉ. Yes, sir.

Mr. RILEY. But to all intents and purposes it is a revolving fund for reclamation purposes?

Mr. GOLZÉ. It is a major source of financing, but cannot be spent without authorization from the Congress.

KENDRICK, WYO.

Mr. RILEY. We will continue the study of the request for the reclamation program with the Kendrick project in Wyoming. Without objection, we will insert pages 283 and 284 of the justifications in the record. We will also first insert the special project data requested by the committee.

(The matter referred to follows:)

KENDRICK PROJECT DATA

Date of planning	1904
Date of advance planning	1933
Date of authorization: The Kendrick project, originally called Casper-Alcova project, was found feasible by the Secretary on Aug. 27, 1935, approved by the President on Aug. 30, 1935, under terms of sec. 4 of the act of June 25, 1910 (36 Stat. 836), and subsec. B of sec. 4 of the act of Dec. 5, 1924 (43 Stat. 702).	
Original cost estimate (1st unit only)	$20,004,000
Date of Reauthorization: The Alcova powerplant was found feasible by the Secretary on Sept. 20, 1949 (H. Doc. 693, 81st Cong.)	
Cost estimate at reauthorization	$26,381,000
Present cost estimate	$32,198,315
Date construction started	1933
Estimated completion date, functional completion	1960

Remarks: Increase in estimate from $26,381,000 to $32,198,315 due to:

General price level increase	$313,000
Change in project plans	9,886,000
Structural and engineering modifications	595,000
Unforeseen conditions	1,772,000
Inadequacy of estimates	1,573,000
Other, including tentative withdrawal of "future drainage"	−8,321,685

KENDRICK PROJECT, WYOMING

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$33,396,533
Total obligations to June 30, 1954	31,177,533
Allotment, fiscal year 1955	730,000
Prior year balance available	50,000
Total obligations, fiscal year 1955	780,000
Allotment, fiscal year 1956	750,000
Total obligations, fiscal year 1956	750,000
Balance to complete	689,000

Work proposed, fiscal year 1956

Completed features.—Facilities completed in prior years and now in use.

Canal system ($63,000).—This amount will provide for contract stabilization and gravel blanket of 3,000 feet of prism on the Casper Canal and allow in addition about $21,000 for miscellaneous canal construction by Government forces. This work is required to prevent seepage.

Lateral system ($111,000).—To provide for continuing placement of asphalt membrane and compacted lay lining in main and secondary laterals and wasteway. Work to be generally accomplished by contract with isolated corrective work by Government forces. This lining work necessary to protect productive land from seepage, to conserve water, to fulfill increasing demands and to encourage development of unused capacity leading to earliest possible project completion.

Drainage system (*$202,628*).—This amount will provide about $45,000 for miscellaneous drainage work by Government forces. The amount of $71,920 is tentatively scheduled for excavation of 2 new drains totaling 14,913 lineal feet, and about $80,000 is similarly scheduled on a tentative basis to cover comprehensive drainage investigations and indirect expense connected with the overall program. Status of present investigations indicates that funds in excess of $45,000 may not be required. All drainage work is directed toward the elimination of excess seepage now being experienced.

Alcova powerplant.—Construction activity completed at the close of fiscal year 1955.

Seminoe-Casper 115-kilovolt transmission line and related substations (*$280,613*).—This amount will provide for electrical equipment and contract construction of additional 115-kilovolt bays for the Casper substation required for the second Alcova-Gering transmission line, and is scheduled for completion by June 30, 1956.

Seminoe-Bairoil 34.5-kilovolt transmission line and related substations (*$35,000*).—This amount will provide for continuation of contract construction of additions to the Bairoil substation, 1,500 kilovolt-amperes, which will be initiated late in fiscal year 1955 and is scheduled for completion early in fiscal year 1957. The Bairoil substation additions are required to serve REA's in the area.

General property (*$12,387*).—This will provide for additional radio communications equipment for the Kendrick irrigation system and force account installations, and for miscellaneous minor additions to the carrier current and telemetering system of Kendrick power facilities.

REPAYMENT

Mr. RILEY. On this Kendrick project, is the repayment contract being negotiated for payment of the irrigation features at $36 an acre?

Mr. WALTER. That is correct.

Mr. RILEY. And the power revenues are calculated to repay something over $14 million, or $642 an acre of the cost allocated to irrigation; is that right?

Mr. WALTER. That is right, sir.

Mr. RILEY. But even at that, complete repayment will not take place before the year 2020; is that a proper calculation?

Mr. WALTER. Yes, sir.

Mr. RILEY. Is that a realistic repayment or amortization program, do you think?

Mr. WALTER. The Kendrick project, as you recall, was authorized under the NIRA Act essentially to sustain the economy of the general area, knowing that the water users were unable to repay the full amount of money for the project. They were a little optimistic in crop returns at that time and, since then, experience has shown that the most they could repay is 90 cents plus the O. and M. charges, totaling $3.10 per acre.

Mr. RILEY. That makes the project run for 65 years and I know we have some other projects in which the power income amortizes some of the irrigation costs after 50 years. But are not those rather exceptions, Mr. Walter, or are they?

Mr. WALTER. Yes, sir. We try to keep them down to the 50-year period, but we cannot make a project like Kendrick payout. The farmers just simply cannot pay it out in that time.

Mr. RILEY. What, if anything, has been repaid on the project up to date?

Mr. WALTER. Up to date there have been no repayments except power revenue repayments.

Mr. RILEY. All the repayments up to the present time have come from power generation?

Mr. WALTER. Yes, sir.

FEASIBILITY OF IRRIGATION PROJECT

Mr. RILEY. I note that the total estimated cost for drainage last year was $288,000 and I believe your cost this year is $540,000, and $202,628 is programed for 1956. Is it good economics to put this much money into an area like this? Do you think the expenditure is justified?

Mr. WALTER. In this case it is justified up to that amount, I think. The problem is very difficult. We have under irrigation now approximately 12,500 acres out of the 22,000 acres originally planned and the soil is a very heterogeneous material and difficult to drain. We are attempting to try to keep up with the drainage as the land develops—as the farmers start to develop the land.

Mr. RILEY. What is the actual experience there on the land that is in use? Are the farmers making a success out of it, or are they having their difficulties, too?

Mr. WALTER. Yes, sir; they are having difficulties. Originally they planned on raising crops like sugar beets and high-income crops as their neighbors downstream were doing and, from experience, they found that they had to revert back to forage crops like alfalfa and small grains, due primarily to their soil condition and climatic condition and short growing season.

Mr. RILEY. How do they market these forage crops? Do they have cattle and sheep—something like that?

Mr. WALTER. The project is enclosed by a very vast area which is a good ranching and stock-raising area, and this project was originally designed to stabilize that industry by raising such crops.

Mr. RILEY. For winter feeding?

Mr. WALTER. Feeding cattle; yes, sir. And they do need that. The need was very evident last year. The ranges were sparse and the demand for feed was very high.

Mr. RILEY. Are those lands quite productive when it comes to raising these feed crops?

Mr. WALTER. Yes, sir; I believe they are productive if they can be kept drained and good, sound water practices are used in applying water to the land.

LAND VALUE

Mr. RILEY. Do you have any sales of farmland in that area that would indicate the going value after irrigation is made available?

Mr. WALTER. Yes, sir; I do not recall the exact acreages or names, but we could probably furnish those for you.

Mr. RILEY. I would appreciate it if you would give us some actual sales, if any have been made, of some of this land that has been under irrigation, just to see what the market value of the land is in that area.

Mr. WALTER. Yes, sir.

(The matter referred to follows:)

SALES OF FARMLAND IN THE AREA OF THE KENDRICK PROJECT

No actual sales of land in the Kendrick area have been made which would be the basis for establishing per acre values for land in the immediate area. Values prevailing on the North Platte project in Wyoming may be used for relative comparison provided recognition of existing oil values is given to lands in the Kendrick area. Prices on the North Platte project in Wyoming vary from $200 to $350

per acre depending on the quality of the land, improvements on the farm, and location relative to transportation, schools, and markets. Land values in the Kendrick will not vary much from the averages cited above.

UNOBLIGATED BALANCE

Mr. RILEY. Now we have inserted in the record an up-to-date statement of the unobligated balances and the estimated balances as of June 30, and I believe on this Kendrick project the actual unobligated balance as of March 31 is shown as $612,982; deferred work is $81,000 and savings are $269,000. Just what do you mean by savings?

Mr. WALTER. The $269,000 are savings primarily on the contract for the Alcova power project. A part of that was contingencies and other parts of that fund were actual quantity savings.

Mr. RILEY. Would that revert into the reclamation fund for further appropriation, or just what becomes of that item that is designated as savings?

Mr. WALTER. That is right; it either reverts or is utilized as a deduction from the next appropriation. It results in a carryover.

Mr. RILEY. The part that was interesting to me was it was listed as a saving; so I would judge from that it would be taken away from this project or, as you say, would involve a request for less funds in the future, or else it would go back into the reclamation fund and be appropriated for some other project.

Mr. WALTER. You mean during the same fiscal year?

Mr. RILEY. I was intrigued by the word "saving."

Mr. NEILSEN. I wonder if we could have Mr. Golzé explain that.

Mr. RILEY. Yes. I would like to know.

Mr. GOLZÉ. The estimate of our unobligated balances on June 30 has been divided into two parts; deferred work and savings. The savings represent money not required this fiscal year due to factors such as Mr. Walter mentioned—reduction in contract and that sort of thing. That money will carry over into next year and can be utilized to finance the program for the next year in the amount shown as savings. It has been customary in the past, to apply some of our carryover to financing the reclamation program in the following year on the basis of the total construction and rehabilitation appropriation.

Mr. RILEY. $81,000 is deferred work. Just what is the explanation of that item? What do you mean by "deferred work"?

Mr. GOLZÉ. Mr. Walter would have to tell you the nature of the work covered by the $81,000, but the amounts in that column represent work scheduled for this year that they have not been able to do for some reason, and the work will be done early in the next year with this money and that appropriated by the Congress.

Mr. RILEY. Is not this money already appropriated, the $612,982? And the part you have not used would all come under the category of deferred work, it would seem to me.

Mr. GOLZÉ. The $612,000 is the balance as of March 31. The components of $81,000 and $269,000 are of the $350,000 total estimated as of June 30. In other words, we will go from $612,000 on March 31 to $350,000 on June 30. And then, out of that $350,000 we estimate $81,000 will be required next fiscal year to finish up the work that was appropriated for this year.

Mr. RILEY. Out of the $350,000 which is estimated to be unobligated on the 30th of June, you have only $81,000 tentatively programed for next year?

Mr. GOLZÉ. Yes, sir; that is correct.

Mr. RILEY. And how nearly complete will that project be then? Will the $269,000 be available for recapture?

Mr. GOLZÉ. The project estimate for next year is $750,000. The saving of $269,000 would reduce the estimate by that amount.

Mr. CROSTHWAIT. In other words, any of the items shown in the next to the last column would be available for application against the 1956 estimate.

Mr. RILEY. In other words, if the estimate for the project for next year is $750,000, we would have a credit against that of $269,000?

Mr. GOLZÉ. Yes, sir, which would reduce it to $481,000.

Mr. RILEY. Thank you.

REPAYMENT

Mr. MAGNUSON. Mr. Walter, did I understand you to say that the water users are not yet starting any repayments?

Mr. WALTER. That is right.

Mr. MAGNUSON. How long has water been on the land?

Mr. WALTER. About 15 years now.

Mr. MAGNUSON. And during those 15 years those irrigators have been signatories, I take it, to the repayment contract?

Mr. WALTER. That is right. The original contract was signed in May of 1935.

Mr. MAGNUSON. I gather from the justifications that they contracted to repay at the rate of $2 per acre per year.

Mr. WALTER. Yes, sir.

Mr. MAGNUSON. And that contract is now being amended?

Mr. WALTER. Yes, sir.

Mr. MAGNUSON. To the neighborhood of $1 an acre.

Mr. WALTER. That is right.

Mr. MAGNUSON. Which boils down, apparently, to 90 cents an acre.

Mr. WALTER. That is correct, plus the O and M charges.

Mr. MAGNUSON. I was just going to ask about the O and M charges.

Mr. WALTER. That is above that 90 cents.

Mr. MAGNUSON. Have they been paying that during these 15 years?

Mr. WALTER. No; I do not believe that they have contributed anything to reclamation under the contract.

Mr. MAGNUSON. What happens with respect to charges which they have not paid? Is the statute of limitations running against them every 3 years, or every 7 years, or whatever it is, and those charges will be forgiven?

Mr. WALTER. Under the new contract, the total that we could expect to get back from the farmers——

Mr. NEILSEN. On that repayment contract, I would like Mr. Dominy to pick it up. He is familiar with it.

Mr. DOMINY. I would be glad to do that. I am Floyd E. Dominy. I am Chief of the Irrigation Division for the Bureau of Reclamation.

DRAINAGE PROBLEMS

The Kendrick project has run into a number of difficulties since it was started back in the early thirties. It was contemplated we would irrigate 35,000 acres. One of the first things that was uncovered was a selenium material in the soil which had not even been known in the United States until during the thirties. I happened to be county agent of Campbell County, Wyo. at that time and some of our livestock in Campbell County, Wyo., came up with a mysterious ailment which was later traced to a rare mineral known as selenium which the plant had absorbed.

As this selenium thing began to develop, it was discovered that a great area of the Kendrick project was loaded with selenium and it would be necessary to eliminate that from the project, because crops grown on it would absorb it and be poisonous to humans, or livestock, or whomsoever would consume the crops. So that eliminated a large bulk of the original area for return of the Government's investment and it was attempted to substitute other lands. But as it develops, we now are reconciled to the fact that we will never have that 35,000-acre project. The best we can hope for is a 22,000-acre project and even that is somewhat questionable.

We are not certain now that it is economical to build the drains that would be necessary to irrigate even 22,000 acres. It may be we should settle for as little as 12,000 to 15,000 acres as the total area of this particular project.

As Mr. Walter told you, settlement started there a long while ago; but settlement of the Kendrick project has been very, very slow. And even at this time we are actually irrigating less than 10,000 acres on the Kendrick project. It is an area characterized by sudden changes in temperature, sudden storms, and we can get a freeze there most any month of the year. So you, for the most part, are limited to forage crops. In my own judgment, as an agriculturalist, the Kendrick project will never be a success as an irrigation project if dependence is placed solely on crops marketed as cash crops from that area. It must be coordinated with a livestock enterprise and very likely will require large areas of rangeland in connection with the irrigation unit.

160-ACRE LIMITATION

Now under the 160-acre limitation, we are only able to allow 160 irrigable acres per individual owner—a man and wife could get as much as 320 acres of irrigable land. It is my judgment that over the long pull we need amendatory legislation here which will exempt the Kendrick project from the 160-acre limitation. The irrigable lands ought to go into the ownership of nearby ranch holdings so that they can use the Kendrick project for a hay base. Hay produced there is pretty costly, because you can never get over two cuttings or possibly three in the very best year, which means that even under irrigation you are not going to get over 3 to 3½ tons of hay per acre. And when you pay construction costs and operation and maintenance and produce no more than 3 to 3½ tons of hay per acre, you need to be able to put that hay into livestock that is out on the mountain forage in the summer, or in the red desert in the winter. You cannot very well

put it through livestock you maintain on a small unit and expect to obtain a living for a family at today's high standard of living.

So the Kendrick project area is one we ought to do something about and work it into a general range livestock economy. Although it is not in this year's budget, we know there is a drainage program of substantial proportions. This drainage problem must be licked if we are going to continue a project here of as much as 15,000 acres, or possibly 20,000 acres of irrigable land. I know as an economist that we would find it difficult to come before you gentlemen to justify that drainage program as far as producing an irrigation farm that would make a living for a family on 160 acres, or even 320 acres per family.

Mr. MAGNUSON. What would you suggest would be an economically feasible size farm?

Mr. DOMINY. Well, you take the sheep ranches in that area and the cattle ranches, the most of them will run from 2 to 3 bands of sheep or several hundred head of cattle to the ranch unit. These gentlemen—they have the resources and they have the capital—could move into the Kendrick project, they could afford to develop the drains; they could afford to irrigate these lands and pay the construction charge and the operation and maintenance charge for the hay base to winter those livestock over. But a dry land farmer moving to irrigation and trying to make a go of that, cannot expect to do it unless he has this resource on the outside. I am satisfied there are any number of sheep and cattle ranchers that would be very pleased to go into the Kendrick project if they could have from three to six hundred acres as a hay base and would be willing to pay the construction charge and the operation and maintenance; because that hay to them would mean the difference of keeping their herds there, particularly in seasons such as we have had during the past couple of years, or liquidating them and cutting them down and then having to rebuild, which is a very valuable asset.

WATER RENTAL AND REPAYMENT

Mr. MAGNUSON. Can you answer the question I asked a while ago as to whether these unpaid charges during the life of the project so far have been forgiven, or will they be collected at some time in the future?

Mr. DOMINY. Yes; I can answer that, Congressman Magnuson. During this interim period before we actually get the project fully settled, we have been delivering water to these people who were prepared to take it under the annual water rental charge. To the extent that annual rental charge does not cover the cost of delivering that water, the costs are added to the construction obligation and the power revenues will repay that. In other words, that will just add a little bit to the burden of power whenever we fail to get back the full cost of delivering that water.

Mr. MAGNUSON. They have the same water rental?

Mr. DOMINY. Yes. We never deliver water anywhere in the bureau without a charge to the farmer. In the early years before the project is developed we sometimes deliver it under what is known as an annual water rental basis, if it is feasible practically and economically we set the annual water rate sufficiently high so that it does return to the Government the full cost of making that service, but, as

I say, in the Kendrick the canals and laterals were built originally to serve 35,000 acres. Capacity is considerably greater than the area now served. The operation and maintenance costs accordingly are somewhat higher, so we have not up to this point been able to recover from the water service the full costs of delivery in any particular year, and the deficit is added to the construction cost.

Mr. MAGNUSON. I see in the justifications that the proposed new schedule is 90 cents an acre for construction and $2.20 as operation and maintenance.

Mr. DOMINY. Operation and maintenance; yes, sir.

Mr. MAGNUSON. This $2.20 item is not the water-rental charge?

Mr. DOMINY. No, sir; this $2.20 per acre for operation and maintenance and $0.90 for construction, is based on our estimates that if we had a full 22,000 acres in cultivation, that $2.20 an acre a year would pay the operation and maintenance cost. If we do not get that in cultivation, the costs would be somewhat higher per acre.

Mr. MAGNUSON. How does the water-rental charge compare with, say, this total of $3.10?

Mr. DOMINY. I am not certain, sir. I will have to supply it for the record. I don't have that data with me. I don't recall what we charged per acre-foot for that water during the last several years.

The base per acre charge for the first 2 acre-feet is $2.50. A little higher charge of $1.50 per acre-foot is made for water delivered in excess of 2 acre-feet per acre.

Mr. MAGNUSON. Water-rental charge is on the basis of acre-feet?

Mr. DOMINY. Yes, sir.

Mr. MAGNUSON. It is a different basis than that on which this is set up?

Mr. DOMINY. That is right. Normally, Mr. Magnuson, when we have just part of the area in cultivation—in this case let us assume we expect to get 22,000 acres—at the present time we are only irrigating somewhat less than 10,000. So you cannot very well expect 10,000 acres to carry the overhead for operation and maintenance that ultimately would be assigned to 22,000 acres, so during that interim period we sell it on a per-acre-foot basis.

Normally, the cost to an individual farmer is actually a little greater during this interim period than it is after full settlement, even though we may not realize a full cost, because we have fewer acres being irrigated.

We do that purposely so as to encourage the district to be responsible for the operation and maintenance and get it over under their control so they can actually reduce the cost of water as quickly as possible.

But, as I say, in this case the settlement has been very slow because of the elevation and the type of crops to which they are limited. There hasn't been any great rush for settling the Kendrick project in small-family-sized irrigation farms.

Mr. MAGNUSON. Perhaps we made a mistake when we undertook this project in the first place.

Mr. DOMINY. That could easily be answered in the affirmative. If you are thinking strictly in terms of irrigated valleys, such as the Yakima, or the Boise, with which you are thoroughly familiar, the Kendrick does not match up. It just won't compete with that kind of an irrigation development.

But if you think of it in terms of Wyoming conditions, and if we will fit the Kendrick project into Wyoming agricultural enterprises and not attempt to make out of it something for which it doesn't have the potential, but adapt it to the economy there existing, I think it can be made economically justified although somewhat costly, and undoubtedly a great share of the cost will need to be paid by the power users in that area rather than the irrigation users.

NEW LEGISLATION NEEDED

Mr. RILEY. Would it require legislation in your opinion to reorganize this irrigation district so that it could serve the purposes that you have suggested?

Mr. DOMINY. Yes, it would, Chairman Riley.

Section 7 of the 1939 Reclamation Project Act directs the Secretary of the Interior, and authorizes him, that wherever he has and finds a repayment problem existing that he cannot resolve under sections 3 or 4 of the Reclamation Project Act, and those sections limit repayment to 40 years and provide a certain formula for varying payments by economic formula, that if he cannot adjust a repayment problem within those two sections from the authority therein set forth he can negotiate an amendatory contract such as he determines to be justified considering the economic problems of this particular project.

He cannot execute it, however, until he has submitted it to the Congress and received approval by act of Congress.

We are currently engaged on the Kendrick project in negotiating such an amendatory repayment contract, and it is entirely possible that as we bring that to completion we may want to recommend to the Congress that the 160-acre limitation be relaxed on this particular project.

That limitation has been relaxed on several other projects in the West, not unlike this one—Newlands project, Nevada, for example, being a project like Kendrick in the range-livestock area, and that the Congress saw fit to eliminate excess land provisions from that project.

San Luis Valley, Colo., in a recent act also was extended additional acreage, up to 960, as a matter of fact, rather than 160.

Mr. RILEY. When do you think you will have such recommendations ready to submit to the Congress?

Mr. DOMINY. I think it is a reasonable forecast, sir, that we could have an amendatory contract ready for the next session of the Congress. It is highly unlikely we will have it before this session of Congress.

Mr. RILEY. Suppose you are able to utilize only 15,000 acres instead of the original 35,000 acres contemplated. How much will that reduce the cost of this project? Can you tell me that?

Mr. DOMINY. It will reduce the cost of the project by the elimination of laterals and drains to the additional acres. It will not reduce the cost of the project at all in terms of the diversion structures and the main canals. That cost already has been made.

Mr. RILEY. Can you give me a dollar reduction, estimate of the dollar reduction?

Mr. DOMINY. Canals, laterals, and drains would run somewhere between three and five hundred dollars an acre, depending on how

serious the drainage problem actually develops to be, so every acre we leave out of the 35,000 would cut off somewhere between 300 and $500 per acre.

FEASIBILITY OF EXPENDITURES IN 1956

Mr. DAVIS. I have had considerable discouragement up until your statement. Up until this time it appeared to be a project which would drift back into the ground after an awful lot of money was put into it. I wondered if this was the usual thing, that people just stood by and watched that happen. I am glad to know there is some thinking in trying to pull this project out of its present doldrums.

I wonder whether there is any real sense of putting any more money into this thing in the current fiscal year until the thing has been reorganized and we know what we are going to do with it.

Mr. DOMINY. Mr. Davis, the work which is programed here is to complete minor construction work on the main canals and laterals to serve the area which we do feel should come into irrigation.

We have chopped off here. We have not asked for the drainage money to go into questionable areas, and we have not asked for the funds to build canals and laterals into the questionable areas.

This program before you represents a retrenchment and represents an honest appraisal of the problems with which we are confronted on the Kendrick project.

FEDERAL INVESTMENT AND REPAYMENT

Mr. DAVIS. What do you include in this term you use of Federal investment per acre?

Mr. DOMINY. Federal investment per acre for irrigation is the total cost minus the allocations to flood control or any other nonreimbursable allocation that might be in the project. In the case of Kendrick that cost includes total cost minus allocation of flood control minus power allocation.

This is the irrigation investment per acre.

Mr. DAVIS. This figure we have of $678 per acre was computed on the basis of what acreage? Do you know?

Mr. DOMINY. 22,000 acres. We have cut it down from 35,000 to 22,000. If we find it necessary, as I personally feel we will, to reduce it somewhat further, then that cost per acre will be somewhat greater because we have sunk the costs in the canals.

Mr. DAVIS. Apparently something over only 5 percent of the investment per acre is to be repaid from water uses. I would hope that that is an unusually small percentage to be repaid from that source.

Mr. DOMINY. Yes; 90 cents an acre is a very small construction component. Particularly when our operation and maintenance estimate is no greater than $2 per acre per year.

Mr. DAVIS. What would you consider to be the average portion to be repaid from water uses?

Mr. DOMINY. Well, we have projects, Congressman Davis, varying from 12 months irrigation down in the Southwest where the water users think nothing of paying $13 to $15 an acre for irrigation up to one like Kendrick and Eden, Riverton, Wyo., where the growing season is only about 90 days.

Mr. DAVIS. In your best projects, what percentage of your Federal investment per acre do you recover through payments from water users?

Mr. DOMINY. We recover in the best projects, under your terminology, 100 percent of the irrigation costs in a 40-year period plus operation and maintenance. That varies, of course, to other projects where the irrigator is paying only 10 to 15 percent of the cost and the balance picked up from power-revenue assistance.

But except for specific approval by Congress for a nonreimbursable writeoff all the money spent in irrigation will be returned to the Treasury either by water user or through subsidy of power.

PROVISIONS OF RECLAMATION ACT

Mr. DAVIS. As you look back and trace the legislative history of this program, was it originally sold to the public and contemplated that when you have a project of this kind you would allocate a certain amount as being chargeable against irrigation, and another amount chargeable to power, we will say, and it was then contemplated that the power users would repay that portion of the cost allocated for power and the water users would repay 100 percent of that portion allocated to irrigation?

Mr. DOMINY. The original Reclamation Project Act of 1902 stated that whatever the costs were would be repaid by the land in 10 years. That proved completely impractical. The man couldn't be expected on sagebrush lands to bring it into production and pay it in 10 years.

It was next expanded to 20 years, but still with the idea that he pay up full cost in 20 years—1914 act.

The next amendment took it to 40 years, still with the proviso that he pay out the full cost, whatever it was, and under that act power did come into the picture with the full cost of the power added to the irrigation costs and divided up on an acre basis, and with the revenues from power, whatever they were, being made available to the irrigation district for application first, on the annual construction costs, and if it paid that, second, on the operation and maintenance cost, and if it paid that, third, to be divided up among them as they saw fit.

Mr. DAVIS. When did that concept enter the picture?

Mr. DOMINY. In the 1924 act.

Then in the 1939 act, the current concept came into being whereby you would allocate on a multiple-purpose project as between the multiple features, flood control, irrigation, and power being the three which were prominently considered, with the allocation to power being paid out with interest and with power returns not going to the irrigation district any longer as had been true under previous acts, but with power bearing, for whatever term of years required, a subsidy to irrigation to pay out those costs beyond that which the irrigator could pay, and after that power revenues would go into the Federal Treasury.

Under the previous act the power revenues never returned to the Government. They went to the irrigation district. That is the current law under which we authorize projects and plan projects today.

Mr. DAVIS. The term you use, "what the irrigator could not pay" is an intriguing thing. Who makes the decision as to whether or not he can pay?

Mr. DOMINY. I have to stand up and be counted as chief of the Irrigation Division, Mr. Davis. It comes under my supervision to work out with the regional directors and their staffs the criteria by which we arrive at a measure of the ability to pay of the irrigation farmer.

A number of factors must necessarily come into play.

Mr. DAVIS. You make the finding with respect to each individual irrigator in that respect?

Mr. DOMINY. I wish we could do it that way. I wish we could set the payments that way because they vary so tremendously as between farms.

But what we try to do, on a new project, for example, is this: We study the soil, climate, rainfall, amount of water to be applied, topography, and we work out actual farm budgets in cooperation with the State agricultural colleges, using all the source material that we can find.

We actually decide that on this 120-acre farm he will normally have 20 acres of beets, 80 acres of alfalfa, and so on, and with normal operating ability, good land use, he can expect to recover this much yield, and he can sell it for this much, and run this many dairy cattle, this many sheep, and so on. We work out farm budgets based on our analysis and with a practical application of what actually is being done on like soil under like conditions.

We then determine what his water will cost him for operation and maintenance, and we allow him a reasonable standard of living for his family based not on our guesses, but on what the average farm family is spending in cash outlay, above their home garden and rent-free house, and so on that they have on a farm.

We come up with a measure of what we can reasonably expect that farm, after he has paid farm family living, paid taxes, paid his water bills, and produced his crops, how much is left to apply to this construction obligation.

As I mentioned a moment ago, I would like to do that farm by farm, but it is not practical for the Federal Government to have a separate contract with each individual. We stopped that clear back in 1914 and the extension in 1926 which required the Secretary of the Interior to deal with districts and not individuals. So we have to take an average.

On a new project we can pretty well decide what size the farms ought to be within the 160-acre limitation and get a reasonable forecast, but on some of the older projects, where the farms are settled on 40 acres, 60 acres, a big farm being 80 acres, there is not much left on a project like that to pay for water after he supports the family and pays his taxes.

So a lot of factors have to be brought into play in determining what this ability to pay is.

Mr. DAVIS. Off the record.

(Discussion held off the record.)

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Mr. RILEY. Is any provision made, Mr. Dominy, for a man who is thrifty and more successful than his neighbors to pay off his obligation sooner or does he have to go along with everybody in the district?

Mr. DOMINY. The district has a district obligation to the Federal Government but it is broken down unit by unit and ascribed to a particular tract of land.

Any landowner at any time is free to come in and pay out his construction obligation and he would then have to pay only operation and maintenance, except that if there is a deficit by failure of a number of landowners to pay, and the district is unable to sell the land of those fellows who failed for a sufficient price to pay out, then there might be a deficit assessment even though you as an individual had paid your cost.

We never have had a deficit assessment because the district is a tax authority under State law, and if an individual fails to pay, just like if I failed to pay my taxes, somebody sells my land for taxes, and usually the land is worth more than the tax bill against it, so there is no deficit assessment.

But there is that possibility.

Mr. RILEY. Does that act as a deterrent to some fellow who wanted to get rid of his obligation, having that potential obligation hanging over him?

Mr. DOMINY. I think as a general rule, sir, that an obligation running 40 years or more, that there is no particular incentive to pay it out. The average irrigation farmer is interested in what it costs him annually to get his water delivered to his land, and the fact that there is a construction obligation which he is paying out over a period of years doesn't concern him particularly.

So we have very few individuals who rush in, even in a good year when they have a very successful crop with good prices, and try to pay out the obligation.

Mr. RILEY. If he doesn't pay any interest he has no incentive.

Mr. DOMINY. That is right.

Mr. RILEY. I wonder if you gave him some incentive to pay out if we could get that money back sooner?

160-ACRE LIMITATION

Mr. NIELSEN. There is one incentive, to get out of the 160-acre limitation.

Mr. DAVIS. Limitation applies so long as the Government has an investment in the project?

Mr. NIELSEN. That is right.

Mr. RILEY. Then he is out from under that limitation?

Mr. NIELSEN. That is right, sir.

Mr. RILEY. That is an incentive.

Mr. PHILLIPS. What if he bought adjoining property upon which there was still money due?

Mr. DOMINY. If he had paid out on his home place, Mr. Phillips, and the adjoining property was not more than 160 acres, he still would be in the clear.

Incidentally, we do not apply the excess land principle to lease land. It is 160 acres per ownership, so if Congressman Riley owned a tract and leased it to Mr. A and Mr. A owned another tract, he

could farm them both even though the two in combination made more than 160 or 320, so long as the ownership was broken down 160 acres per individual.

SETTLER ASSISTANCE COSTS

Mr. DAVIS. Explain a couple terms which appear to page 282 of the justification. One is settler assistance costs, and the other future year capacity.

Mr. DOMINY. I would be pleased to go into both of those items, sir.

We started with the 1939 act, section 7, the Reclamation Project Act under this authority the Bureau and the Congress faced up realistically to problems which had arisen on a number of the older reclamation projects. We have since 1948 submitted to the Congress amendatory contracts with 37 irrigation districts, and as we went into the problem with those districts which had defaulted on their payments and found it impossible to meet the charges, a number of things came to light which made us amend our way of doing business.

One of them was the criticism that settlers were permitted to go on these farms without any aptitude whatsoever, butchers, bakers, and candlestickmakers so to speak. They were permitted to apply for an irrigation farm, go out there and try to make a go of it.

Secondly there had been no aid of a sustained nature to show those people how to put those farms under irrigation, so in recent years we have had in every announcement for public lands, we have provided that only those boys that had farm experience since the age of 15, at least 2 years of actual on-the-farm experience since the age of 15, could qualify.

Secondly, they had to have a minimum of capital resources varying from $3,000 to $4,500 depending on the project, so they would not have to borrow 100 percent of the money they needed to subjugate the farm.

In addition we have tried to put into effect some real honest-to-goodness advice and assistance on a day-to-day sustaining basis during the first year or two.

We have been doing that in cooperation with the Extension Service and the Soil Conservation Service of the Department of Agriculture.

Unfortunately most of our projects are in areas where there is very little population at the time our project is formed, so that particular county normally doesn't have the resources to employ an additional county agent to go out here on 30,000 or 40,000 acres of new land and live there day after day and help those farmers.

So as part of the project cost we have been employing what is known as assistant county agents. They are actually selected by the State universities and the Extension Service but paid out of project funds for a period of several years, and those boys go out and show each settler how best to lay out his farm, how best to level it, and teach him good irrigation practices in the early years.

It is a very valuable assistance, not particularly costly on a per acre basis.

FUTURE YEAR CAPACITY

The second item is this: For years, such as we talked about on Kendrick, if we had a 40,000-acre project, for example, the first year

that we have the ditches down far enough to irrigate part of that land we may be able to irrigate only three or four thousand acres, the second year twice that much.

But it usually takes from 2 to 6 or 8 years before we are actually able to irrigate the entire 40,000.

Years ago we used to have in our budget an O and M during construction item, which actually recognized that fact.

Mr. PHILLIPS. You still have.

Mr. DOMINY. This really replaces it. So we are putting part of the operation and maintenance cost during the early years into the construction account, and charging it to the project rather than expecting to recover it from the limited acreage that is irrigated during those early years. That is what this item is, Mr. Davis.

Mr. PHILLIPS. Picking up Mr. Davis' questions, just as a matter of continuity, you were formerly an Extension Service agent?

Mr. DOMINY. Yes.

Mr. PHILLIPS. How long have you been with the Department of the Interior?

Mr. DOMINY. I came to Washington, D. C. with the Department of Agriculture in 1938. I worked with the Coordinator of Inter-American Affairs, and with the Navy out in the Pacific islands during the war, and came with Reclamation in 1946 after I got out of the Navy, sir.

SETTLER-ASSISTANCE COSTS

Mr. PHILLIPS. You recall just about the time you came on, then, there was considerable argument as to whether the type of educational work carried on on reclamation projects was properly carried on by the Department of Agriculture or the Department of the Interior?

Mr. DOMINY. Yes, sir. That argument was fairly intensive at that time. It was not completely resolved, and it hasn't been resolved up to this time.

Mr. PHILLIPS. It hasn't been resolved apparently because you testified that Interior is spending $164,364 on this one project, for settler-assistance costs.

Do you recall the legislative committee in the 78th and 79th sessions took a strong position on that point?

Mr. DOMINY. I think the point which was specifically before the committee at that time had to do with land development and actual mechanical subjugation of the lands more specifically, than assistance in the form of technical assistance.

Congress did at the time refuse to pass a bill which was known as the rubber-boots bill, in the vernacular, which would have authorized the Interior to go in and level lands and have that charged as part of the irrigation cost.

Mr. PHILLIPS. Do you think calling it by this new name makes it any better?

Mr. DOMINY. As I tried to point out, sir; it is not the same thing.

Last year, in connection with the development farm program, which is related to this settler assistance item, the question again was raised as to whether the development farm program was properly the field of the Secretary of Agriculture or the Secretary of the Interior.

The conference report directed that the Secretary of the Interior, Secretary of Agriculture, and the Bureau of the Budget get together

and make a report to the Appropriations Committees, which has been done.

The gist of that report, Congressman Phillips, was that both Secretaries, of Agriculture and Interior, and the Director of the Budget, again recommend to Congress that this was a desirable feature of reclamation development, that it ought to be carried out, that it was the kind of enterprise which could be financed only through reclamation funds as part of the project, but that if the Congress felt that the agencies of Agriculture should play a more prominent role in the administration of it that the possibility was that it could be transferred to the State colleges for a more specific control and management than had been heretofore supplied by the Agriculture Department.

The program as it now operates is financed by reclamation funds, the farms are selected by technical committee composed of the Department of Agriculture representatives, State college representatives, and Bureau of Reclamation.

Mr. PHILLIPS. Would you like to add that has started another argument in another direction?

Mr. DOMINY. Perhaps it has, sir.

Mr. PHILLIPS. What duplication of effort, then, exists today? I was on the legislative committee to which I referred.

What duplication exists today in this work about which you have been testifying?

Mr. DOMINY. I don't think any actual duplication of on the job work is in evidence.

Mr. PHILLIPS. Are we talking about Nebraska or Wyoming?

Mr. DOMINY. In any of them.

Mr. PHILLIPS. There are county agents in Wyoming?

Mr. DOMINY. Yes.

Mr. PHILLIPS. Extension Service agents?

Mr. DOMINY. Yes. In any one of the 17 Western States where we have a new project, and where in our judgment the local county agent's office needs to be supplemented in terms of manpower, we first go to Soil Conservation Service, and we say "You have soil conservation districts."

Mr. PHILLIPS. I was going to bring that up next.

Mr. DOMINY. You have a soil conservation district which embraces this project. How many people can you put on the job?

We sit down with those individual farmers, draw up a farm plan, show them how to irrigate the farms, lay out the fields, what crops he should grow, and so forth.

If the Soil Conservation Service is able to do the job that stops it right there.

If they are not able to do the job, then Reclamation goes to the extension service at the State and county level and talks it over with them as to how many additional employees they would need to pick up that part which the Soil Conservation Service can't do.

Then we, as project costs, furnish the money for the Extension service to actually employ an additional man or two, whatever is needed, to make up that deficit.

In the Columbia Basin the Soil Conservation Service is right in there pitching, and they cover about half to 60 percent of the farms.

We have supplied funds out of Columbia Basin project costs to employ assistant county agents which cover the other 40 percent of the farms.

But, as I say, there is no duplication of on-the-job work. It is carried out with whatever resources among the three agencies can be made available.

AUTHORIZATION FOR KENDRICK PROJECT

Mr. PHILLIPS. Here is the curious thing. You evidently started planning it in 1904 but it took 29 years to get it to a point where you got enough approval to do any advanced planning.

Is the situation one that during these 29 years generally the Department or Bureau thought it was not a feasible project?

Mr. DOMINY. That is entirely possible, sir; and I suspect that we have projects today that are being pushed back on the shelf as infeasible, which in the not too distant future, as our population grows and other demands on agriculture come into being, will be found to be feasible and will be constructed.

Maybe we were a little ahead of time on Kendrick. Certainly we have our problems there, as I have already stated.

Mr. PHILLIPS. In 1933 I presume this went before the legislative committee, and I presume according to the custom today, this was 20 years ago, they asked for a report on its feasibility.

Did the Bureau make a strong report on the feasibility of Kendrick in 1933?

Mr. DOMINY. Our records show it was authorized by finding feasibility, approved by the President on August 30, 1935.

That finding of feasibility may not actually have come before the Congress. You will recall in 1935 we had a number of special authorities, relief projects, relief work, and so on. I suspect this was one of those which were authorized under those emergency relief measures.

Mr. PHILLIPS. Have you any more like it?

Mr. DOMINY. That is a broad question. Yes, we have other projects on which we have some difficulties.

Mr. PHILLIPS. How many projects have we in the entire total of reclamation projects?

I would like to know how many projects we have in the United States, how many of those are delinquent? How many are delinquent in their payments?

My recollection is that very few of the reclamation projects, except the earlier ones which were good, strong, feasible projects, have actually paid out in the time that was justified and authorized at the time we set them up.

Mr. NIELSEN. I think we can give you an overall answer without specific numbers.

Mr. PHILLIPS. We have had to nurse most of them along.

Mr. GOLZÉ. We have no projects delinquent in the sense they have not yet met payment due.

Mr. PHILLIPS. That is because we have modified the original contract or done something to ease the burden.

Mr. GOLZÉ. The amendatory contracts were processed since the end of the war. Those contracts have generally extended or adjusted the pay-out schedules.

Mr. PHILLIPS. It might be interesting to have some figures on that. Do you want to try and work them up?

Mr. RILEY. Off the record.

(Discussion held off the record.)

PROJECT DATA

Mr. PHILLIPS. I want to ask when these were authorized, when construction was started, what was the original maximum contemplated, and what is the present contemplated total cost, and has there been an actual reauthorization secured by the Bureau for the increase which will be evident in a good many of these contracts?

Mr. DOMINY. We had about 2 years ago a series of questions that I believe encompass everything that you have just asked from the Legislative Committee, and the Interior and Insular Affairs Committee of the House.

We provided answers, and that came out in the form of a committee print.

We recently brought that up to date.

I wonder if we could supply that to you here?

Mr. PHILLIPS. If that is satisfactory to the chairman it is to me.

Mr. DOMINY. I think that covers everything you asked.

Mr. RILEY. I think that would cover the information.

NOTE.—Question again discussed on April 29, 1955, by Congressman Phillips. See p. 236. Information was provided for each project giving the data requested and appears at the beginning of the testimony on each individual project.

In direct response to Congressman Phillips' and Congressman Riley's questions data were presented on the amendatory contract program as follows:

Extension of repayment periods resulting from execution of contracts pursuant to sec. 7 of the Reclamation Project Act of 1939 or the Rehabilitation and Betterment Act of Oct. 7, 1949

Project and authorizing act	Irrigation district	State	Date of amended contract	Year initial construction payment due	Overall payout period [1]	
					Previous contract	Amended contract
					Years	*Years*
Act of May 6, 1949 (63 Stat. 62):						
Bitter Root	Bitter Root	Montana	Nov. 29, 1949	1937	40	[2] 58
Klamath	Shasta View	Oregon	Aug. 20, 1948	1928	40	50
Okanogan	Okanogan	Washington	Sept. 20, 1948	[3] 1909	50	73
Shoshone	Willwood	Wyoming	Mar. 13, 1949	[4] 1951	(4)	[2] 55
Uncompahgre	Uncompahgre Water Users Association	Colorado	Dec. 13, 1948	[3] 1924	57	125
Yakima	Kittitas Reclamation District	Washington	Jan. 20, 1949	1934	[5] 78	102
Act of Oct. 27, 1949 (63 Stat. 941):						
Belle Fourche	Belle Fourche	South Dakota	Nov. 29, 1949	[3] 1914	83	[2] 115
Shoshone	Deaver	Wyoming	Nov. 14, 1949	[3] 1918	[5] 97	[2] 231
Umatilla	Stanfield	Oregon	Nov. 18, 1949	1935	43	(6)
Do	Westland	do	do	1932	40	(6)
Vale	Vale-Oregon	do	Apr. 11, 1949	1946	39	[2] 75
Yakima	Prosser	Washington	Nov. 25, 1949	1919	46	[2] 64
Act of Aug. 5, 1950 (64 Stat. 415, ch. 593): Ogden River	Ogden River Water Users Association	Utah	May 23, 1950	1944	40	67
Act of Aug. 5, 1950 (64 Stat. 415, ch. 594): Hyrum	South Cache Water Users Association	do	May 24, 1950	1938	43	59
Act of June 23, 1952 (66 Stat. 151, 152, 153):						
Frenchtown	Frenchtown	Montana	Sept. 6, 1951	1939	40	50
Milk River	Glasgow	do	Sept. 10, 1952	1932	40	[2] 134
Do	Malta	do	do	1932	40	[2] 124
Riverton	Midvale	Wyoming	June 26, 1952	1944	[2] 60	[2] 137
Owyhee	9 districts	Oregon-Idaho	Aug. 29, 1951	1940	40	99
Act of July 17, 1952 (66 Stat. 754, 755):						
North Platte	Gering-Fort Laramie [7]	Nebraska	Sept. 22, 1952	1922	[2] [5] 115	[2] 115
Do	Goshen [7]	Wyoming	do	1929	[2] [5] 115	[2] 126
Do	Pathfiender [7]	Nebraska	do	[3] 1909	[5] 95	86
Act of June 18, 1954 (68 Stat. 254):						
Umatilla project	Hermiston	Oregon	July 6, 1954	[3] 1908	[5] 151	[2] 148
Do	West extension	do	do	[3] 1918	[5] 129	200
Act of June 30, 1954 (68 Stat. 359): Yakima	Roza	Washington	July 22, 1953	1947	40	74
Act of July 27, 1954 (68 Stat. 534): Pine River	Pine River	Colorado	Nov. 30, 1953	1944	38	40
Act of Aug. 10, 1954 (68 Stat. 679): Deschutes	North unit	Oregon	Feb. 13, 1954	1956	40	78
Act of Aug. 21, 1954 (68 Stat. 762): Minidoka	American Falls No. 2:					
	Old lands	Idaho	Oct. 14, 1954	1929	20	28
	New lands			1947	40	47
Act of Aug. 24, 1954 (68 Stat. 794): Boise	Black Canyon:					
	1st unit	do	Sept. 2, 1954	1923	[5] 37	38
	2d unit			1948	40	[2] 86
Rehabilitation and Betterment Act of 1949:	Grand Valley Water Users Association	Colorado	Mar. 5, 1951	1931	43	98

1st unit	do	Sept. 2, 1954	1923	[6] 37	38
2d unit			1948	40	[2] 86
Rehabilitation and Betterment Act of 1949:						
Grand Valley	Grand Valley Water Users Association	Colorado	Mar. 5, 1951	1931	43	98
Sun River	Fort Shaw	Montana	July 11, 1951	[3] 1908	[5] 64	[5] 81
Okanogan	Okanogan	Washington	Aug. 15, 1951	[3] 1909	73	86
Shoshone	Willwood	Wyoming	June 30, 1952	1951	55	69

[1] Computed from year initial construction payment due under initial repayment contract with individual water users or irrigation district.

[2] Repayment contract obligation includes total cost of rehabilitation and betterment program which is merged with basic construction obligation.

[3] Date construction payments scheduled to begin under original individual water-right contracts.

[4] This is initial contract for this district.

[5] Previous contract payout period indefinite because annual construction charges based on 5-percent gross crop value repayment plan authorized by act of Dec. 5, 1924. Payout period shown estimated on basis of gross crop values for the years 1939–44.

[6] No fixed repayment obligation or fixed payout period. Full return of costs to Government at rates specified in contract probably will not be accomplished within useful life of project works (153-year overall for Stanfield and 328-year overall for Westland).

[7] The main purpose of this amendatory contract was the acquisition by the United States of the water users' interests in the hydroelectric powerplants of the North Platte project. Incidental to the negotiated power settlement were changes in the schedule of irrigation construction costs repayment resulting from the reduction in the overall repayment obligation.

NOTE.—As indicated in findings submitted to the congressional committees pursuant to Rehabilitation and Betterment Act of 1949, repayment of the cost of rehabilitation and betterment work will be accomplished within the payout period of existing repayment contracts on the following: Langell Valley Irrigation District, Klamath project; Chinook districts of Milk River project; Northport and Pathfinder Irrigation Districts, and Warren Act contractors on North Platte project; Orland project; Salt River project, and Yakima project (storage division).

Mr. PHILLIPS. I think that this particular project has been covered, so let us get on to another one, Mr. Chairman. Maybe we have one that is doing better for us than this one.

RIVERTON PROJECT, WYOMING

Mr. RILEY. The next project is the Riverton project in Wyoming. Without objection, we will insert the special project data requested and pages 290 and 291 of the justifications in the record at this point.

(The matter referred to follows:)

Riverton project data

Date of planning	1904.
Date of advance planning	1918.
Date of authorization: Originally authorized as an irrigation project under the Bureau of Indian Affairs and was placed under the jurisdiction of the Bureau of Reclamation by act of June 5, 1920 (41 Stat. 874, 915).	
Original cost estimate (1918)	$6,777,025.
Date of reauthorization	None.
Present cost estimate	$25,370,000.
Date construction started	1918.
Estimated completion date—Functional completion of construction	After 1961.
Remarks:	
Increase in estimate from $6,777,025 to $25,370,000 due to:	
General price level increase	$3,870,403
Change in project plans	168,112
Structural and engineering modifications	666,907
Unforeseen conditions	8,675,520
Inadequacy of estimates	4,861,293
Other	350,740

RIVERTON PROJECT, WYO.

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$25,343,000
Total obligations to June 30, 1954		19,995,610
Allotment, fiscal year 1955	$298,500	
Prior-year balance available	181,000	
Total obligations, fiscal year 1955		479,500
Allotment, fiscal year 1956		300,000
Total obligations, fiscal year 1956		300,000
Balance to complete		4,567,890

Work proposed, fiscal year 1956

Joint facilities, completed.—Included are the operating Bull Lake and Pilot Butte Dams and Reservoirs; Wind River diversion dam, Wyoming Canal, first division; station 0 to 487, and general property for operation of these facilities.

Midvale Irrigation District—Completed facilities.—Includes the completed and operating second division of the Wyoming Canal, stations 487 to 883, the pilot canal and laterals, necessary drainage facilities, the Midvale farm unit development.

Wyoming Canal, third division, stations 883 to end ($3,000).—Minor construction work will be completed.

Muddy Ridge Canal, third division, stations 16 to 1053.—All activity on this item has been deferred.

Wyoming laterals, third division, stations 883 to 3304.—All further activity on this item has been deferred.

Muddy Ridge laterals, third division.—All activity on this item has been deferred.

Wyoming Canal drains, third division ($265,170).—Construction of additional open and closed drains in the North Pavillion and North Portal areas as well as construction by contract of a terminal wasteway structure is tentatively planned subject to reexamination of investigation reports in justification thereof.

Muddy Ridge drains.—All activity on this item has been deferred.

Farm unit development, third division ($42,000).—For administration of Public Law 258.

Channels, levees and flood works, Muddy Ridge.—All activity on this item has been deferred.

General property, third division.—All further activity on this item has been deferred.

Power facilities, completed.—Includes the operating Pilot Butte powerplant and 89 miles of 34.5-kilovolt transmission line.

Mr. NIELSEN. We have some maps here. Would it be helpful to the committee if we were to explain in very short order the physical aspects of this project?

Mr. RILEY. Yes, I think it will.

Mr. NIELSEN. We are prepared to do that.

Mr. PHILLIPS. You know, Mr. Chairman, I am intrigued by that statement that if we wait long enough they will be willing to take down off the shelf a lot of these projects which are not feasible now. Do you contemplate a further reduction in the value of the dollar, or do you contemplate that Congress year by year is weakening?

Mr. DOMINY. I made that statement as an economist, believing as the pressure of the population in the United States continues to increase by geometric progression, as it very obviously is increasing, that there will come a time, and perhaps, not in our lifetime, but not too long thereafter, when we are no longer a surplus-producing Nation in terms of agricultural commodities. That was the reference that I made, that there can easily be foreseen a time when projects which are considered uneconomic today may become economic on a national economic basis in later years.

Mr. PHILLIPS. We have met that situation in the last 150 years by the development of better equipment, and the development of better methods through the Extension Service.

Mr. DOMINY. Yes, sir, that is right.

Mr. PHILLIPS. And better fertilizers.

Mr. DOMINY. That is right.

Mr. PHILLIPS. And better seeds. Have you given all that up?

Mr. DOMINY. No, sir, not at all, but there is a physical limit as to how far you can go there, I believe.

Mr. PHILLIPS. Thank you, Mr. Chairman. I was just filling in the interval until they got that map up.

Mr. RILEY. You are asking for $300,000 to continue this project for the next fiscal year. Do I understand that that will complete the project to the extent of about 79 percent of the original estimate?

Mr. CLINTON. No, sir, Mr. Chairman, that will not complete it.

Mr. RILEY. I say about 79 percent.

Mr. CLINTON. It will be about 81 percent complete at the end of this fiscal year.

Mr. RILEY. 81 percent?

Mr. CLINTON. Yes.

DESCRIPTION OF PROJECT

Mr. Chairman, I might save the committee a little trouble and a little time if I gave the committee a brief explanation of this project and its history. It is another one of our problem projects. I will give you a little explanation of the physical layout of the project and the history of it.

The Riverton project was taken over by the Reclamation Service back in 1920 by the act of June 5, 1920, or under the terms of that act.

It was orginally started and planned as an Indian Service project.

The first work was done on the project starting in 1920. That was the construction of the diversion dam here [indication] on Wind River, and the start of construction on the main canal, the Wyoming Canal. At that time they visualized a project of 100,000 irrigable acres to be served by that canal. It extends along here [indicating], ends down at the Bighorn River.

From 1920 until about 1940 the area which is now known as the Midvale Irrigation District was developed.

It is located here, coming down to as far as Pavillion, and extends around Ocean Lake, and down along the edge of the bench near Riverton in this area [indicating].

In that area there has been developed about 49,000 acres.

There were troubles in that area, back even in the twenties and thirties with drainage, and there were also some troubles with the construction of the Wyoming main canal, in holding it on hillside locations.

The drainage work has been done pretty well in the old original area. The water table has been pretty well stabilized, and I think the old Midvale district is pretty well settled down in that respect.

There was an early repayment contract which was negotiated with the district which later had to be amended. That repayment contract was amended back in 1952.

Even at that time there were enough difficulties in the Riverton project so that it was very evident that the Bureau should take it back to the Congress, and it was taken back under section 7, as Mr. Dominy has explained to you a while ago.

Under that repayment contract the Midvale district agreed to a total obligation of $7 million, and the Bureau recommended a writeoff for that particular area of around $600,000. To pay off the $7 million due from the Midvale district at their repayment ability, which was set at about $3 an acre total per year, the repayment of the original construction costs would require 92 years. That contract was submitted to both legislative bodies of the Congress and it was approved.

In the meantime, the Appropriations Committee appropriated additional funds to extend the Wyoming Canal into and across what we know as the North Pavillion area, which is in the vicinity of the town of Pavillion, and north of Ocean Lake and into the North Portal area, which is this loop [indicating], where the Wyoming Canal comes up and crosses Five Mile Creek and then heads out toward the Bighorn River.

That area of the North Pavillion and the North Portal areas covers about 13,000 acres.

The construction work which was done in that area was done between the years 1940 and 1948. It had water available for it by 1948. That area has been fully settled now.

There was also money appropriated for the purpose of extending the Wyoming Canal beyond that point, and around here [indicating] to develop the Muddy Ridge area, which extends along Five Mile Creek and the Cottonwood bench area. That is the high bench side

located here [indicating] above Muddy Creek, and is adjacent to the Bighorn River and Boysen Reservoir.

Soon after the construction of that canal was well along and some irrigation on the canal was actually underway we became concerned about the drainage problem which was developing there.

Since we had some trouble in that respect with the Midvale district, and we were getting into more trouble in the North Pavillion and North Portal areas, we decided that we should make a further detailed drainage study, a classification study of the land in the Muddy Ridge and the Cottonwood areas, and since that time we have deferred any further construction in that area.

In the Midvale and the North Portal areas there was some difficulty being experienced by the settlers on account of the size of the farm units that they had.

The original size of the units which were set up on the Riverton project, which were established in the late twenties, and in the early thirties, proved to be too small for the settlers. That is one of the reasons why the settlers were having trouble out there, along with the drainage problem which exists in that area.

So, we thought that was sufficient cause for us to bring the Riverton project back to the Congress once more. That was brought in and the problem was laid before the Congress, and the decision which Congress made at that time was to pass Public Law 258.

That was the law which permitted an amendment to the size of the units which the settlers had, to increase the size of the original units. The law gave the settlers the privilege of taking an amended unit by adding other land to the unit that they had or of moving off the project, if they so desired, and applying for a unit somewhere else.

That law has been in operation now for 2 years, and we have gotten along well with the administration of it, and we have taken it about as far as we can on the Riverton project with amendments of the units, as we have no more land available for that purpose. We still have some applications pending for amending units that we are not able to take care of because we do not have additional land available for that purpose.

Because of that situation which exists in regard to these amendments we have made a thorough study of the Muddy Ridge and Cottonwood Bench area again in order to see if it is feasible to extend the development and finish that distribution system and thereby open up additional land for settlement in order to make land available for meeting the amendment requirements.

We will again submit to Congress and the legislative committees either through the section 7 route or the regular authorization route for an addition to the project and a request for further money to construct facilities which will be necessary to meet these requirements.

Mr. RILEY. How much acreage is now available in a unit?

Mr. CLINTON. There are about 60,000 acres developed at the present time.

Mr. RILEY. No; how much land is available to each individual owner under your programing?

Mr. CLINTON. We have a set standard of allowing them the equivalent of 100 acres of class 1 land. Taking into account the varying production of land available we classify that land into classes 1, 2,

and 3, and a unit of class 3 land would approach 300 acres, and for class 1 land it would be 100 acres. That is the general standard that we are using now for amending the units, that is, for amending the units which were originally laid out as 80-acre units.

Mr. DOMINY. Mr. Chairman, we ran into a problem in that connection.

Under the Desert Homestead Act we are permitted to homestead a maximum of 160 acres, even though out of that 160 acres maximum only 90 acres might be irrigable land. So, we had to go back to Congress last year and get through an amendment which permits us to homestead up to a maximum of 320 acres of land, of which not more than 160 acres is irrigable.

In other words, we did not ask to violate the 160-irrigable-acre provision of the act, but we did ask for a special amendment to the Desert Homestead Act, thus giving us the room to move and to make amendments to the individual farms on the Riverton project.

Mr. PHILLIPS. Will you yield, Mr. Chairman?

Mr. RILEY. Yes.

Mr. PHILLIPS. You have an exceptionally large area of white on the map there, which I presume means land which is not desirable for farming.

Mr. CLINTON. Yes.

Mr. PHILLIPS. Is that land worse than the land you are searching for up in the yellow area shown on the map to be put into irrigation?

Mr. CLINTON. These [indicating] are gravity flow canals, and this lateral comes around on this one side and skirts one side of the hill [indicating]. This [indicating] is on the other side, and the white area [indicating] is not suitable for irrigation. As to the little of it that is good for irrigation we feel that the cost of getting water up there, because we have to pump water up there to serve it, we feel the cost is too great, and we left it out.

There is one other point that I would like to discuss while I am still at the map.

1956 PROGRAM

I want to explain our program this year. As I said a moment ago, we are not asking for any construction money to extend the canal system this year. We are asking for money this year for our drainage work.

Now, that drainage work which should be done is practically all located up here in the North Pavillion area, and in the North Portal area.

The last of that land in those areas was brought in about 1950. We have had about 5 years' experience with that. The last land which was brought in has been irrigated for less than 5 years. The water table has gradually risen in that area, and we have tried to keep up with it by keeping that area drained. The bulk of our money which we are requesting this year will be centered in this area in an effort to stabilize that water table; that is, hold it down so that they can keep that land in crop production.

Mr. RILEY. Will the money that you are asking for this year complete the necessary drainage work on the land now being irrigated?

Mr. CLINTON. No, I am not sure that it will, Mr. Chairman. We are only conducting this drainage work as the water table rises.

We have some carryover from last year, and we are asking for $300,000 this year the same as last year. We did not use all that we contemplated using for the reason that the rise in that water table which was contemplated did not materialize in some places that we thought it would rise. We are not going to conduct drainage work until the water table gets close enough to the root zone to be dangerous to the crops.

We may not conduct all of the drainage work that we have allotted money for this year, but we are asking for the money so that if we do get a rise in the water table this summer we can do the necessary drainage work before it gets serious and we lose the land. We will continue that work, I guess, for another 2 or 3 years.

Mr. RILEY. I note here that you have in the justifications a tentative allocation of $265,100 subject to reexamination of investigation reports in justification thereof. When will you have those reports so that you can make a determination as to whether or not you can use this money to advantage?

Mr. CLINTON. I have not been able to locate the item, Mr. Chairman.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. CLINTON. Oh, I see it now. What we mean by that is that it is subject to further drainage surveys, and watching the water levels in our observation wells. It is what we call the drainage investigation that we are keeping going currently.

Mr. RILEY. I was interested in knowing when you would make that determination and decide whether or not you could use this money advantageously.

Mr. CLINTON. I would say generally when the water table gets up to within 8 feet of the surface we are getting pretty badly worried about it, and that we will generally move in and start constructing drainage works.

We have had cases where it rose to within 6 feet of the surface, and whenever that happens we have trouble digging drains in the wet soil.

Mr. RILEY. What is the height of the water table now?

Mr. CLINTON. It varies all over the project, Mr. Chairman. There are some places where it is still 30 or 40 feet below the surface, and we have other areas, particularly in those areas where we are doing drainage now, where it is standing about 10 feet from the surface, and if it stabilizes at 10 feet we will leave it there, and not dig any drains.

USE OF FUNDS

Mr. RILEY. There is a possibility, then, that you might not need this money for several years.

Mr. CLINTON. Yes, sir; that is right, Mr. Chairman. We may carry it over again in 1956, the same as we did in 1955. We have shown here $120,000 that we are going to carry over of the money which was appropriated for us last year, and I think it is good business to carry it over if we do not need it.

Mr. RILEY. You are carrying over $120,000 here, and you still have not obligated some $30,000.

Mr. CLINTON. Yes, sir; that is right.

Mr. RILEY. That is, on June 30.

Mr. CLINTON. Yes, sir. That $30,000 there is savings which we realized below our estimates for the drainage work which we did this year.

REPAYMENTS

Mr. RILEY. I note on this particular project that the repayments per acre are allocated as about $298 as compared to the Kendrick project, in which there is an allocation, I believe, of $36 per acre. That is quite a difference, is it not?

Mr. CLINTON. Yes, sir; and there is a very good reason for that, Mr. Chairman. They have power revenues on the Kendrick project, and we have a very small amount of power on the Riverton project. I failed to mention that a while ago. We have a small powerplant on the Riverton project. It is a 1,600-kilowatt powerplant which is located on a drop between the Wyoming Canal and the Pilot Butte lateral, and the revenues derived from that plant are not sufficient to provide very much help for irrigation. So, that was one of the reasons why the Midvale contract had to be extended to 92 years, because they have to carry the full obligation, and the same thing will have to be done on the third division lands that are still to come under contract.

Mr. RILEY. When does the 92-year repayment period start on this particular project?

Mr. CLINTON. I believe, Mr. Chairman, that it started on the date of the contract which was in 1952, and it will run for 92 years from that time.

Mr. RILEY. Did I understand you to say that you have a pretty heavy demand for land in this area under the present contract?

Mr. CLINTON. Yes, sir; we do have for land for the amendment of inadequate farm units.

Mr. RILEY. Does that mean that the people who are there are applying for additional land, or are they newcomers?

Mr. CLINTON. No, sir; those are applications from people who are already there. The 60,000 acres of land which has been developed has settlers on it, and a lot of the settlers are on units which are too small.

As I have previously said, Public Law 258 permitted us to increase the size of those units, so all of the settlers are anxious to get more land. They would like to see Muddy Ridge developed for the reason that they could get more land in that unit, and so they would not have to go elsewhere in order to obtain their rights under Public Law 258.

Mr. RILEY. Are you making a survey and study of the so-called Muddy Ridge area to determine what can be done there?

Mr. CLINTON. Yes, sir; we are.

Mr. RILEY. When will that report be available?

Mr. CLINTON. We have it back in the region now for the purpose of review. I think we have set a tentative date to complete the review and get it back to the Commissioner for his approval in June or July.

CONSTRUCTION DEFERRED

Mr. MAGNUSON. You are conducting a drainage survey and said that you have since deferred all construction on the project?

Mr. CLINTON. That is correct.

Mr. MAGNUSON. Is it deferred merely pending the completion of the survey?

Mr. CLINTON. No, sir; it is deferred pending completion of the feasibility report and the submission of that report through some channel to the legislative bodies of Congress before proceeding further with construction.

Mr. MAGNUSON. Because you anticipate that it will revise the financial picture in a major way?

Mr. CLINTON. Yes, sir; it will.

I might explain, in that connection, that the land in the third division is all public land, and the land that has been opened since 1940 is now fully settled and is up to the point where we can form an irrigation district. We are urging those settlers in that district to do so, so that they will have an organization with which we can deal to negotiate a repayment contract. That contract may also include Muddy Ridge. In it if we do develop Muddy Ridge it will also be included in the district, and could be covered by a section 7 contract.

REPAYMENT

Mr. MAGNUSON. Are these settlers paying their construction cost?

Mr. CLINTON. Yes, sir; they are.

I think, in contrast to the Kendrick project, the Riverton project through the years, in spite of their troubles, has done much better. They have paid in the Midvale District since their contract was amended and have met their full annual obligation. They are operating and maintaining the canals serving their area and covering all of that operation and maintenance cost, and are paying $1.40 on construction per year.

Mr. MAGNUSON. In addition, are they paying water rental?

Mr. CLINTON. No; they are not on a water-rental basis. The settlers on the third division are paying a water-rental charge.

Mr. MAGNUSON. I want to get that straight in my mind. If they pay this contractual amount for construction, operation and maintenance is there a water-rental charge?

Mr. CLINTON. No; there is not, that is, after they have signed a repayment contract.

Mr. MAGNUSON. Where is this located geographically from the Kendrick project?

Mr. CLINTON. It is west of the Kendrick project. We do not have a general map here.

Mr. MAGNUSON. Generally, where is it?

Mr. CLINTON. I guess it is about 75 or 100 miles west.

Mr. MAGNUSON. What are their crops there?

Mr. CLINTON. In the past their general crop program has been alfalfa, grain and forage crops, and some sugar beets and beans. The sugar beet and bean acreage has increased recently.

In the last 2 years they have a new crop out there which is alfalfa seed. They did very well in the North Pavillion and North Portal area last year on alfalfa seed.

Mr. MAGNUSON. Do they use the sugar beets for cattle feed?

Mr. CLINTON. No; they are shipped to Worland, Wyo., to the factory there and processed into sugar. They leave the tops laying in the field for fall feed for cattle and sheep.

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Mr. MAGNUSON. Power will bear a great proportion of the cost of this project also, I believe?

Mr. CLINTON. No; it bears a very small part of it, Mr. Magnuson.

Mr. MAGNUSON. I cannot find the figures on that.

Mr. CLINTON. It bears a very small part of the cost because of the small size of the plant. It is only a 1,600-kilowatt plant, and that is the only power on the project, and this project is not a part of the Missouri Basin project. It was authorized and built under a prior authorization, prior to the Missouri Basin project authorization.

Mr. MAGNUSON. If these settlers are in some economic difficulty, do you think it can be adjusted by increasing the size of the farm units?

Mr. CLINTON. I think Public Law 258, with the latitude that we have under that to increase the size of their units, will take care of that project. Those settlers are going to have a hard road for another 10 to 15 years, though.

Mr. MAGNUSON. What if you cannot solve the drainage problem?

Mr. CLINTON. We believe that on the Riverton project, Mr. Magnuson, there is a limit to what we can afford to spend to recover the land. We have passed up some areas because it would cost too much to drain them or keep them drained, and we have, therefore, classified them as nonirrigable. We are now generally setting an upper limit of $250 an acre in small units as the maximum cost to which we will go.

Mr. MAGNUSON. On drainage?

Mr. CLINTON. Yes, sir; on drainage.

Mr. PHILLIPS. How high is the elevation on that white spot that we were talking about?

Mr. CLINTON. It is about the same as the Kendrick project.

Mr. PHILLIPS. No, just the white spot, where you said it would not pay to pump water. How high would you have to pump it?

Mr. CLINTON. It is over 100 feet.

Mr. PHILLIPS. How high is the Washington Monument?

Mr. CLINTON. 300 feet, I believe.

Mr. PHILLIPS. Is it pretty good land up on that elevation?

Mr. CLINTON. No, it is not.

Mr. PHILLIPS. I think that there might be some suggestion there of inconsistency. You do not think that it would be feasible to pump water up to an elevation of 100 feet here, but you recommend pumping it considerably higher than the Washington Monument in some of the Western States and carrying it about as far as from here to Chicago.

Mr. CLINTON. My own personal feelings on this project is that we have enough troubles in those places where we can provide gravity irrigation.

Mr. MAGNUSON. I would like to ask one more question for the record, Mr. Chairman.

Mr. RILEY. Mr. Magnuson.

Mr. MAGNUSON. Mr. Clinton, your statement that in your opinion you have enough trouble providing water with gravity flow without pumping it, does that apply to this specific project and not to reclamation in general?

Mr. CLINTON. I am applying it to this specific project, the Riverton project.

Mr. RILEY. Is that all?

Mr. MAGNUSON. Yes.

Mr. RILEY. We will recess, then, until 2 o'clock tomorrow afternoon.

FRIDAY, APRIL 29, 1955.

SHOSHONE PROJECT, WYOMING

Mr. RILEY. The next project is the Shoshone project. We will insert the usual data on this project and pages 298 and 299 of the justifications.

(The matter referred to follows:)

Shoshone project data

Date of planning	1903
Date of advance planning	1904

Authorization: Initial construction approved by Secretary of the Interior February 10, 1904, on recommendation of the Director of the Geological Survey pursuant to the act of June 17, 1902 (32 Stat. 388).

Original cost estimate: No estimate of total project cost reported. An initial sum of $2,250,000 was set aside for commencement of construction.

Reauthorization:

(*a*) Pursuant to the act of June 25, 1910 (36 Stat. 835), the Shoshone project was examined and reported upon by a Board of Army Engineers. This report, finding the project feasible, was approved by the President and transmitted to the Congress on January 5, 1911. The cost of the project was estimated in the report to be $7,828,000.

(*b*) The Heart Mountain powerplant, at an estimated cost of $900,000, was added to the project by finding of feasibility by the Secretary, approved by the President August 31, 1945.

Present cost estimate	$22, 517, 471
Date construction started	1905
Estimated completion date	1958

Remarks: The estimated cost of the project has increased due principally to increases in general price level, unforeseen conditions, and changes in project plans.

SHOSHONE PROJECT, WYOMING

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$22, 502, 000
Total obligations to June 30, 1954	21, 347, 854
Allotment, fiscal year 1955	470, 000
Total obligations, fiscal year 1955	470, 000
Allotment, fiscal year 1956	300, 000
Total obligations, fiscal year 1956	300, 000
Balance to complete	384, 146

Work proposed, fiscal year 1956

Buffalo Bill Dam and Reservoir.—This facility is completed and is now in operation.

Buffolo Bill Dam and Reservoir—Rehabilitation.—Studies on alternate schemes for rehabilitation of the outlet works will be deferred after fiscal year 1956.

Completed divisions (Garland, Frannie, and Willwood).—These divisions completed in prior years and now in operation.

Canals and conduits ($7,916).—The canal lining program will be continued by contract.

Laterals ($19,415).—Work will consist of continuation of the lateral lining program and minor force account activities on channel protection below structures and at critical points along the lateral system.

Drains ($220,456).—Drainage investigations and extension of the drainage system by contract, as the need becomes apparent, will be continued. Construc-

tion of drains by minor force account will also be continued to relieve emergency situations.

General property.—By the end of fiscal year 1955, ditchrider's residences will have been completed.

Farm-unit development ($55,859).—These funds will be used for processing of amendments to present farm units and the processing of exchange units in accordance with Public Law 258. These funds will also provide for continuation of surveys in reestablishment of farm unit boundaries, preparation of farm-unit plats to be submitted to the Bureau of Land Management, extension of the lateral system to serve the amended units, and a minor amount of rough leveling of amended farm units.

Power facilities.—Work completed. This heading includes the Shoshone and Heart Mountain powerplants and 163.4 miles of transmission lines.

DESCRIPTION OF PROJECT

Mr. CLINTON. I would like to give a description of the project first.

The Shoshone project is another one of the Bureau's older projects. The construction was started back in the early years, shortly after the passage of the 1902 act. It was authorized under the 1902 act, and also under the 1939 act.

It consists of four divisions.

First, there is the Garland division, which you will notice on the map is rather small, and it is centered around the town of Powell, which is the green area there on the north side of the river [indicating].

It was the first division constructed, and the main canal serving that division was extended later on down to the Frannie division, which is farther north and to the east, and is centered around the town of Frannie, Wyo.

The next division constructed was the Willwood division on the south side of the river, and it was served by a separate diversion dam, and a separate canal from the Shoshone River.

The last division that was constructed was the Heart Mountain division. Construction on that division started in 1939.

The Heart Mountain division extends from the town of Cody, covering the benchlands overlooking the river and extending down to the Garland division.

The need for storage developed early in the development of the project. It was recognized early, and as a result Shoshone Dam, which is now known as Buffalo Bill Dam was constructed. It has the capacity of 450,000 acre-feet.

In addition to the irrigation works, there was a powerplant built in the twenties at Shoshone Dam itself, and in the late forties the Heart Mountain plant was built. It is located on a drop from the Heart Mountain Canal down into the river.

The Shoshone powerplant has a capacity of 5,600 kilowatts. The Heart Mountain powerplant has a capacity of 5,000 kilowatts.

Altogether there are about 100,000 acres developed in the project, and by this coming June it will be about 97 percent complete.

To give you an idea of the breakdown of the acreage amongst those divisions, the original Garland division now has 41,000 acres in it; the Frannie division has 20,000 acres; the Willwood division, 11,000 acres, and the Heart Mountain division, 27,000 acres.

The three early divisions—the Garland division, the Frannie division, and the Willwood division—were covered by repayment contracts that were signed several years ago.

There was an amendatory contract recently on the Frannie division, and the irrigation works serving all three of those divisions have been operated by the irrigation districts for several years.

The lands in the Heart Mountain division have been under settlement since the war. There has been an irrigation district formed there, and we are in the process now of negotiating a contract with them.

We have a water-rental contract now. The Heart Mountain division, again, is a public land project, so until we had that division fairly well settled we were not able to form an irrigation district, but we have passed that stage now, and they have an irrigation district formed.

I think those are the general features of it.

In order to orient you with the Riverton project which we were talking about yesterday, it is down about at the bottom of this map, about 100 miles south of here [indicating]. The Montana-Wyoming boundary is right at the edge of the Frannie division, so we are in the northern edge of Wyoming here [indicating].

COMPLETION OF PROJECT

Mr. RILEY. I note here that you will have an unobligated balance on the 30th of June of $165,000, and that you are asking for $300,000 for next year.

I note also that you stated that this project is about 97 percent complete. Will it be possible to complete the project in 1956 and turn it over to the local people?

Mr. CLINTON. No, sir, it will not be, Mr. Chairman. We still have drainage work to do on the Heart Mountain Division. The last of that land was brought under irrigation in 1950. As was expected, there was a rise of the water table there, and most of the work that we have been doing last year, and practically all that we will be doing this year is drainage work, the construction of drains, and the lining of canals and laterals to reduce the seepage. That drainage work will probably continue for another 2 or 3 years.

We do, however, plan to turn over the operation of the Heart Mountain Division to the water users of the district as soon as we have a repayment contract with them.

Mr. RILEY. What do you estimate will be the amount of drainage that you can properly do during the fiscal year 1956?

Mr. CLINTON. Most of the $300,000 which we are asking for will be spent on drainage, Mr. Chairman.

Mr. RILEY. Next year?

Mr. CLINTON. Yes, sir, in the fiscal year 1956.

Mr. RILEY. Why do you think it will take several more years to complete this, if it is so nearly complete now?

Mr. CLINTON. It is because of the drainage problem which we have on all of our projects, Mr. Chairman. As I explained to you on Riverton yesterday, we had to wait for the drainage situation to develop and become imminent before digging drains, and there is no way to tell very far in advance how extensive the need will be for drainage, or in what locality it will be needed next or where eventually the water table will stabilize.

That situation has now been reached on the Garland division. It has been stabilized for several years on that division, and all the district has now is the maintenance of those drains.

Mr. RILEY. Are some of these problems created by the different types of soil?

Mr. CLINTON. Yes, sir, and by the underlying formations. In some of the areas the underlying material is porous to the extent that the water that percolates down from plant roots can escape, and in other areas there are dense or impervious layers that hold it up, and if it cannot escape and go down into the ground it rises to the surface, and then we have to relieve it by digging surface drains.

Mr. RILEY. Did you have to reduce the acreage in the Shoshone project because of the drainage problem there?

Mr. CLINTON. Yes. In the old Garland division there was an appreciable reduction in the acreage that they thought that they could originally irrigate there, and there has been some land abandoned on that account some 20 years ago or so, and the same thing is true of the Frannie Division.

Mr. RILEY. What is the demand for property in this area?

Mr. CLINTON. I think it is similar to that in most any of the irrigated areas in Wyoming. Irrigated land is in demand. I do not think that there is too much turnover in it. People who own the land just stay there.

Mr. RILEY. What I meant was are the acreages sufficient to support people? We have had some testimony that the acreage was not sufficient on this type of land to enable people to sustain themselves on the farms in a favorable position.

Mr. CLINTON. That is correct, Mr. Chairman. To a certain extent on the Heart Mountain division we have had some of the same trouble that we have had on the Riverton project, because of the Heart Mountain division being laid out in units that were too small.

Public Law 258 which I described yesterday and its application on the Riverton project is applicable to this division also, and we are doing some amendment of units on this division to increase the size of those units.

REPAYMENT PERIOD

Mr. RILEY. What is the repayment period on this project, how many years?

Mr. CLINTON. The three old divisions, the Frannie division, the Willwood division, and the Garland division, were originally under a 40-year contract. The Garland division and the Willwood division are still on a 40-year contract.

The Frannie division contract has been amended. I do not recall the length of the repayment period on the Frannie division. Do you recall that, Mr. Dominy?

Mr. DOMINY. I have that material in a bulletin which I gave to Congressman Phillips.

Mr. PHILLIPS. Yes. I have it here.

Mr. DOMINY. The Frannie division has an amandatory repayment contract, which was approved by act of Congress on October 27, 1949, which calls for an ability-to-pay type of contract, requiring them to pay all of the original obligation, except that that was properly assignable to acreage which had been declared to be nonirrigable.

Mr. RILEY. Do you know what the repayment period is?

Mr. DOMINY. The repayment period, sir, is something over 200 years under that contract. As I say, that was based on an analysis of the ability of that particular land to pay, taking into account the very small size of the irrigated units which were opened up in the early days and that the land could not be expected to pay much more than the operation and maintenance.

Mr. RILEY. You say it would run about 200 years?

Mr. DOMINY. Our calculation shows about 231 years as the required time to recover all of the capital costs for the Frannie division.

EFFECT OF STOPPING FURTHER WORK

Mr. RILEY. What would be the effect on economics of this irrigation project if you just stopped any further work?

Mr. DOMINY. As Mr. Clinton has said, Mr. Chairman, the Shoshone project is virtually complete with the exception of drainage for the Heart Mountain division. If we were not able to put in the required drains, a certain part of that 27,000 acres of irrigable land in the Heart Mountain division would be abandoned, because without the drains, the land will seep out under irrigation, a certain percentage of it. Just how much it is difficult to predict, because drainage is something you live with pretty continuously on an irrigation project.

Mr. CLINTON. Mr. Chairman, I did want to clear up one point. I had not quite finished answering your question a moment ago on the repayment situation.

Mr. RILEY. I am sorry.

Mr. CLINTON. On the Heart Mountain division we do not have a contract, and that one will not be able to pay out in 40 years. The total cost charged up against it now is about $246 an acre, so, we will have to use the section 7 authority of the Reclamation Act to bring that contract into Congress. We are now in the process of negotiating it, but the period will be beyond 40 years.

Mr. RILEY. Is all of this land that you propose to drain occupied, or would curtailing the drainage of the project cause any abandonment of land by people who are already on the project?

Mr. CLINTON. The project is wholly settled now, Mr. Chairman, and the people are using all of the land and living on it in the Heart Mountain division where we are doing drainage work now, so, if we stopped the drainage program some of the people would have to abandon their farms. They are all World War II veterans.

Mr. RILEY. Mr. RABAUT.

CANAL AND LATERAL LINING

Mr. RABAUT. On page 294 of the justifications there is this wording:

> Work remaining to be completed and which will be underway in fiscal years 1955 and 1956 consists of canal and lateral lining.

What do you mean by the word "lining"?

Mr. CLINTON. That is where we install either a concrete lining, or a lining of bentonite.

Mr. RABAUT. What is bentonite?

Mr. CLINTON. It is an impervious material which is mined in Wyoming. You put it in the canal and water does not go out through

it readily. The purpose of lining the canal and the laterals is to stop the seepage loss or reduce the amount of seepage from the canal and laterals.

Mr. RABAUT. I notice you use the phrase, "reduce the amount of seepage." That is a lot to spend reducing the amount of seepage in the laterals when the whole pool certainly gives way to a good deal of seepage, does it not?

Mr. CLINTON. No. The water is spread from the canal over the land, and the water table is built up by contributions from the water that is spread over the land in irrigating the crops. That is, some of that percolates down and that contributes to the ground water pool under the ground.

Then, in addition to that, water seeps out of the canals throughout the project. In the solving of the drainage problem if we can stop any seepage from the canal economically that is that much less ground water that we have to deal with, and that we must take out by drains.

Mr. RABAUT. Is the lining of those canals and laterals an important factor?

Mr. CLINTON. If the seepage loss is heavy it is an important factor. The more loss there is from the canal, then the more water there is to get out by drainage.

Mr. RABAUT. You make a distinction between that and water which has been spread on the fields——

Mr. CLINTON. Yes, sir.

ADDITIONAL LAND

Mr. RABAUT. What is this reference to "the amendment of approximately 1,000 acres of irrigable land to present farm units"? That is the area where there was formerly a War Relocation Administration camp?

Mr. CLINTON. Yes; sir, that is correct.

Mr. RABAUT. Was there a lot of concrete, and so forth, poured upon that camp area?

Mr. CLINTON. No, fortunately there was not very much concrete spread on it. There were a few small footings under those temporary buildings that can be cleaned up very readily, and the land can be cleaned easily and used for irrigation. In addition, of course, there was much more land in that war relocation center than just the land where the buildings were located.

Mr. RABAUT. There was more than 1,000 acres in it?

Mr. CLINTON. There were 1,000 acres of land in it.

Mr. RABAUT. 1,000 acres?

Mr. CLINTON. Yes, sir, and we are using that land to add to the inadequate units which come under the provisions of Public Law 258.

CHARGEOFF OF NONPRODUCTIVE LANDS

Mr. RABAUT. Is that where some of this item called, "Chargeoffs and adjustments," in the amount of $1,811,178 comes in?

Mr. CLINTON. I will generally explain it, and maybe Mr. Dominy can supplement it.

In general, part of that came about back in 1926 in what was known as the 1926 Adjustment Act.

Some of the divisions got the benefit of that act, and the rest of it, I think, came in the Frannie division amendatory contract. There was some chargeoff in that. Can you supplement that, Mr. Dominy?

Mr. DOMINY. Under the 1926 act Congress adopted the principle that where lands had been included within an irrigation system and the works had been built with capacity to serve a certain area——

Mr. RABAUT. Where what had been built?

Mr. DOMINY. Where works had been built like dams and storage and diversions and canals, and then some of the lands later proved to be nonproductive, Congress in the 1926 act approved a reduction from the charges to those lands on a per acre basis proportionately to the number of acres that had gone bad.

So, in these amendatory contracts, taken up under the 1939 act, we have recommended, pursuant to that precedent of the 1926 act, that wherever lands additional to those that had been written off under the 1926 act had gone bad that the per acre obligation be written off. So, on the Shoshone project we have actually by authority of the 1926 act authorization, or by amendatory bills dealt with the Deaver and Willwood Irrigation Districts which are a part of the writeoff of this $1,811,178.

Mr. RABAUT. Off the record.

(Discussion off the record.)

Mr. RABAUT. I understand now the cause of the loss of this $1,811,178, but the question I want to ask you now is this: in your present studies and activities are you attempting to avoid these losses in the future? Are you making studies differently than you did at that time in order to ascertain the condition of the soil of the area, or is that impossible until all of this is accomplished?

Mr. DOMINY. No, sir, it is not impossible, and by today's standards we do perform much more fully soil analyses than we formerly did before proceeding.

Mr. RABAUT. Have you had a marked improvement, then, according to today's standards?

Mr. DOMINY. Yes, sir, I believe we have.

Mr. RABAUT. And a lessening of loss in this regard?

Mr. DOMINY. Yes, I think decidedly so, sir.

Mr. RABAUT. That is all I want to ask, Mr. Chairman.

AUTHORITY FOR RENEGOTIATION OF REPAYMENT CONTRACTS

Mr. PHILLIPS. Mr. Clinton, let us go back because I did not quite understand one of your references. In your testimony you spoke about section 7. I presume, in order to identify that, it is section 7 of the act of 1939.

Mr. CLINTON. Yes, sir, that is correct.

Mr. PHILLIPS. I am reading from page 6 of a volume called Bureau of Reclamation Project Feasibilities and Authorizations, and it reads:

> The Secretary from time to time shall report to the Congress on any proposed contracts negotiated pursuant to the authority of subsection (a) or (b) (1) of this section.

Is that the one you were referring to?

Mr. CLINTON. Yes, sir, that is the section I was referring to.

Mr. PHILLIPS. Continuing to read that it states:

The Secretary from time to time shall report to the Congress on any proposed contracts negotiated pursuant to the authority of subsection (a) or (b) (1) of this section, and he may execute any such contract on behalf of the United States only after approval thereof has been given by act of Congress.

Your reference was entirely to the renegotiation and reauthorization of a contract already entered into and which, for some reason or other, had gone sour?

Mr. CLINTON. Yes, sir, that is correct, Mr. Phillips.

Mr. PHILLIPS. Do you interpret that authority to come under section 7?

Mr. DOMINY. May I answer that, Mr. Phillips?

Mr. PHILLIPS. Yes, Mr. Dominy.

Mr. DOMINY. Section 7 (b), Mr. Phillips, goes on.

Mr. PHILLIPS. I was reading section 7 (c).

Shall I read section (a)?

Mr. DOMINY. Section 7 (a) gives authority for the Secretary to renegotiate contracts existing as of the date of the passage of this act in those cases where he determines it is beyond the ability of the water users to pay.

Mr. PHILLIPS. Yes, I see that. It states:

The Secretary is hereby authorized and directed to investigate the repayment problems of any existing project contract—

and so forth.

Mr. DOMINY. Now, section 7 (b) goes on to state that the Secretary is authorized to conduct negotiations on any project now under construction or for which money has been appropriated as of the date of this act.

Mr. PHILLIPS. Then the third section, 7 (c), has reference to those you have not yet begun to negotiate.

Mr. DOMINY. That requires us to come to Congress for approval before the execution of a contract.

Mr. PHILLIPS. You have to take sections 7 (a) and 7 (b) together for what we are talking about?

Mr. DOMINY. Yes.

LENGTH OF CONSTRUCTION PERIOD

Mr. PHILLIPS. Another thing that I am not clear on is the same question which Mr. Rabaut asked with regard to the $1,811,178. Was that the total contract, or the loss?

Mr. CLINTON. That was a loss, Mr. Phillips.

Mr. PHILLIPS. It would appear that you made your investigations in 1903, and that the work began in 1904. When was it completed, Mr. Clinton?

Mr. CLINTON. In the Heart Mountain division it was completed in 1950.

Mr. PHILLIPS. In 1950?

Mr. CLINTON. Yes.

Mr. PHILLIPS. You mean that it was under construction for 46 years?

Mr. CLINTON. No, sir. The Heart Mountain division was the last one built.

Mr. PHILLIPS. Which one had all of the drainage problems?

Mr. CLINTON. The Frannie division.

Mr. PHILLIPS. When was that completed?

Mr. CLINTON. Well, it was back in the twenties, the 1920's. I cannot give you the exact date, Mr. Phillips.

Mr. PHILLIPS. Do you mean, then, that it took some 20 years to complete it in 1946?

Mr. CLINTON. The order in which they were constructed, Mr. Phillips, is this: the Garland division was constructed first. It was started about 1903 or 1904.

The Frannie division was constructed next, and I think it was completed during the twenties. The Wildwood division was completed during the thirties.

LOSS FROM SOIL PROBLEMS

Mr. PHILLIPS. Of course, what is in my mind, very obviously, is where were the engineers of the Interior Department in 1903 when they made these investigations and did not observe that you had porous soil there which could not be handled the way you expected to handle it for that amount of money? What happened? That is 50 years ago, of course.

Mr. CLINTON. The soils are different on all three of those divisions, Mr. Phillips.

Mr. PHILLIPS. That may be true, but I do not think that is the answer to my question. Why did not the engineers, in making their tests when the work was started, observe that you had a soil that was going to cause you a loss of almost $2 million?

Mr. CLINTON. I think, Mr. Phillips, like all other professions, that they have learned from experience, and I think that our standards of land classification and drainage studies have been gradually tightened up through the years.

I think if we applied our present standards to the land that was originally included in the Shoshone project that we would have come up with far less land to be irrigated than the canal systems were built to serve at that time.

HISTORY OF HEART MOUNTAIN DIVISION

Mr. PHILLIPS. Referring to pages 294 and 295 of the justifications, also in connection with Mr. Clinton's testimony, I am not clear about the repayment contract in this Heart Mountain division, and maybe you had better clear that up for the record at this time.

Do you mean from your testimony that water was delivered to the farmers on this division without a repayment contract?

Mr. CLINTON. Yes, sir; and that is a common practice on public land projects. It has always been done that way.

Mr. PHILLIPS. Let us not use the word "always," because I have a very clear recollection of what happened in connection with Hoover Dam. We had to sign an overall contract before you would even start pouring a bag of cement on the project.

Mr. CLINTON. That is done because when we build a system we have no landowners out there at the time, and we do not open up the land for settlement until the irrigation system is completed and is ready for irrigation service, and it takes a period of 1, 2, 3, 5, or

even 10 years to get settlers there on the land, and to get enough of them there to form an irrigation district.

In the case of the Heart Mountain division we reached that stage a year ago, and a district was formed, and we are in the process now of negotiating a contract with that district.

Mr. PHILLIPS. You are testifying, in effect, that the Interior Department, or the Bureau of Reclamation, is engaged in sort of a national gamble, that you build a dam and then look around for people to buy water?

Mr. CLINTON. No; when the irrigation system is completed we open the land up for settlement, the same as was done under the Homestead Act. You cannot open it up for settlement until you have water there with which to irrigate.

Mr. PHILLIPS. I am certainly learning a lot on this subcommittee.

You have now opened up for development a project in which the land is not as extensive as you anticipated it to be when you started the development and you were authorized to proceed with the building of the project. How many users are you going to get for the present project before you can make it effective?

Mr. CLINTON. By the time we opened the land on the Heart Mountain division, Mr. Phillips, we had a detailed classification of the land, and we had determined then that there were about 27,000 acres of irrigable land available for settlement.

Mr. PHILLIPS. I think it is repetition, but I think you said you thought at first that there were going to be 27,000 acres.

Mr. CLINTON. No, sir; that is the adjusted acreage, the final acreage.

Mr. PHILLIPS. What did you think at first?

Mr. CLINTON. I think the canal system was probably designed for a larger acreage.

Mr. PHILLIPS. How much larger acreage?

Mr. CLINTON. Somewhere in the neighborhood of 40,000 acres.

Mr. PHILLIPS. The Bureau of Reclamation built a project which was estimated to serve 40,000 acres of land, and after you had spent the money on it you discovered that it was only capable of serving 27,000?

Mr. CLINTON. No, because the capacity of the canal was built for future extensions.

Mr. PHILLIPS. What is the difference between what you say and what I say? You have just testified that you build these projects and then open up the land to settlement and hope people will come and contract with you for it. What is the difference between what you are saying and what I am saying? I do not think that there is any difference.

Mr. DOMINY. May I take it up there for a moment, Congressman Phillips?

What Mr. Clinton said was, as we started the Heart Mountain division of the Shoshone project, we contemplated under the reconnaissance soil survey that we would have 40,000 acres.

Mr. PHILLIPS. The Interior Department?

Mr. DOMINY. Yes.

So, the original capacities for the main canals and siphons were based on a water supply for 40,000 acres.

Then we went in immediately, and we started work, and did detailed soil classifications, and on the basis of the detailed soil

classifications which we made we reduced the irrigable acreage to 27,000 acres, so the laterals and the specific works were not built for 40,000 acres.

Mr. PHILLIPS. But the canals are built for 40,000 acres.

Mr. DOMINY. The canal capacity is.

Mr. PHILLIPS. And the laterals are built for 27,000 acres.

Mr. DOMINY. Yes.

The canal capacity is not wasted, Mr. Phillips, because of the fact that there are additional acres in that vicinity which we propose ultimately to develop for irrigation to use that extra canal capacity.

Mr. PHILLIPS. You have a total of 27,000 acres with which to absorb the entire lateral capacity in using that water. Those 27,000 acres are, therefore, expected to absorb, or pay, the cost which you had intended originally to lay over 40,000 acres, and your contention today or statement today is that they cannot do it and, therefore, that the Government must take a loss of $1,811,178.

Mr. DOMINY. That might be true, Mr. Phillips, if we do not develop any other land beyond the end of the main canal, and eventually that full capacity would have to be charged up against the 27,000 acres.

Mr. PHILLIPS. Mr. Rabaut asked what caused this loss, and I think the answer is very simple, which is the fact that the water was put upon land not capable of retaining it. As Mr. Clinton has testified, that would not happen today, and I am not sure that it should have happened 40 or 50 years ago.

Mr. RABAUT. Could I say something off the record?

Mr. RILEY. Yes.

(Discussion off the record.)

Mr. DOMINY. The one-million-eight-hundred-and-sixty-some-odd-thousand dollars that we show here as being lost to the Government has no connection with the Heart Mountain division. That loss has already been incurred in connection with the Frannie division primarily, and, to a small degree, in connection with the Willwood and Garland divisions, but almost all that $1,800,000 is attributable to drainage difficulties which arose on the Frannie division, which was built years and years ago before we did have any accurate soil analysis.

Mr. PHILLIPS. Let me get this straight. When you are talking about 40,000 acres, are you talking about all 3 of these projects?

Mr. DOMINY. No, sir; strictly about the Heart Mountain division, which is the one which is currently nearing completion of construction.

ESTIMATED AND ACTUAL ACREAGE SERVED

Mr. PHILLIPS. The total number of acres you expect to serve with the entire project with all of its parts when concluded is smaller than the number you expected to serve before discovering the condition of the soil. Are the other two projects now serving the capacity which you expected them to serve?

Mr. DOMINY. No; not in the case of the Frannie division.

Mr. PHILLIPS. And the other one?

Mr. DOMINY. The Garland Division and the Willwood Division are serving substantially the acreage which was originally contemplated, but there are some small reductions in those two divisions.

Mr. PHILLIPS. I do not know about the whole committee, but there is one member of this committee who likes to know what the figures

are. There may be a difference of opinion as to what is substantial. Do you think that could be worked out for us in figures?

Mr. DOMINY. We can give you those figures. I may have them right here.

Mr. PHILLIPS. I would call a reduction from 40,000 acres to 27,000 acres substantial.

Mr. NIELSEN. We are talking about the Heart Mountain Division when we use those two figures, Mr. Phillips.

Mr. PHILLIPS. That is right, but we have the Garland, the Frannie, the Willwood and the Heart Mountain Divisions here. We have four divisions. I am trying to find out about the others.

Mr. NIELSEN. He is trying to find that now.

Mr. DOMINY. I am afraid that this does not break it down to the refinement that you seek, Congressman Phillips, but we can develop that for you.

Mr. PHILLIPS. Do you understand what I want?

Mr. DOMINY. Yes, sir.

Mr. PHILLIPS. I do not want just the figures on the project you have been testifying about, the Heart Mountain Division; I want all sections of the project, the number of acres you anticipated serving and the number of acres you actually serve.

Mr. DOMINY. Yes; I understand.

(The matter referred to follows:)

Irrigable acreage by divisions

Division	Originally estimated (acres)	Lands opened to settlement (year)	Present [1] (acres)	Possible additions [1] (acres)
Garland	[2] 45,994	1907	41,627	275
Frannie	[2] 38,000	1917	20,083	0
Willwood	11,000	1927	11,426	169
Heart Mountain	38,000	1946	26,214	11,755
Total	132,994		99,350	12,199

[1] Bureau of Reclamation Crop Report, 1953.
[2] House Document No. 201; 69th Congress, 1st Session.

REQUESTED DATA FOR ALL PROJECTS

Mr. PHILLIPS. I have a general request, Mr. Chairman, that I think will save the committee time and space in the record.

I would like to have for every one of these projects, and I make this request with the understanding that it goes back to the beginning and takes up those that we have already gone over, when the project was authorized by the Congress, the amount that it was testified to the Congress originally it would cost, the amount which it is estimated now it will cost, and the date or dates of the reauthorizations which have taken place in the interval, or, if there have been no reauthorizations, the simple statement, "no reauthorization." Also the date it was started, and the date it was concluded.

Now, Mr. Dominy has a book that has all of this in it over there, but I do not want to print the whole book in the record.

The first paragraph in every justification shows the authorization, and that is a part of what I want, and page 296 of the one we are talking about gives some of the things that I want, the initial date of

planning, the advance planning and construction, but it does not give the date of conclusion. Then at another place I find the estimated original cost and the total estimated construction cost today.

For example, in the case of the Shoshone project it was originally estimated to cost $2,250,000 and today it is estimated to cost $22,105,000 plus the transitional development which brings it up to $22,500,000 which, I would suggest, was a substantial increase from the original estimate.

I would just like to have that information if it can be provided on every one of the projects and then I will not ask for it again. It will save our space in the record.

That is all I have, Mr. Chairman.

Mr. RILEY. Off the record.

(Discussion off the record.)

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

Mr. RILEY. The next items are the drainage and minor construction program and the rehabilitation and betterment program. The appropriation request for 1956 is for $320,000. Without objection I will ask that pages 302, 303, 315, and 316 be incorporated in the record at this point.

(The matter referred to follows:)

CONSTRUCTION AND REHABILITATION

Drainage and minor construction program, Missouri Basin, fiscal year 1956

Obligation program	$369,000
Appropriation request	320,000

The drainage and minor construction program comprises work on projects on which all major construction has been completed, except facilities which are temporarily deferred, or on which small amounts of funds are programed in the budget year. The programed amounts provide for drainage work, minor repair or replacement work, miscellaneous finishing activities, or preconstruction work on the temporarily deferred facilities.

During fiscal year 1956 work under the drainage and minor construction activity in the Missouri Basin will include the following programs:

Buffalo Rapids Project, first division, Montana

A contract for construction of drainage ditches and related structures will be awarded and construction started. Drainage observation wells will be read at regular intervals. The proposed construction of the drainage system will alleviate this condition, thereby permitting the sale of the lands, and reclamation of crop lands.

Buffalo Rapids project, second division, Montana

A contract for construction of drainage ditches and related structures will be awarded and construction started. Seepage and water level conditions will be studied and detailed investigations made to determine other contracts to be awarded. This is necessary to prevent waterlogging of irrigated lands, reduction of crop returns, and eventual removal of affected areas from cultivation.

Sun River project, Greenfields division, Montana

Construction will be initiated on an inlet transition to a drop on the Pishkun Canal. Construction will be started on other structures and waterways as studies underway point out the need for additional construction to remove restrictions in the supply canals. The divisionwide drainage program will be continued as studies point out the need for drainage of seeped areas.

Completion reports and as-built drawings

Technical records of design and construction and as-built drawings will be prepared for five projects on completed separable features which have passed from the construction status to operation and maintenance status before the necessary

work of preparing these records could be completed. These records are of vital importance in cases of future alterations, rearrangements of machinery, emergency repairs, or replacements.

Rehabilitation and betterment of existing projects, Missouri Basin, fiscal year 1956

Obligation program	$438,000
Appropriation request	438,000

On irrigation projects which have been in operation for a considerable period, the water storage and conveyance facilities have frequently exceeded their useful life and require excessive maintenance programs to continue operations. These deteriorated and obsolete facilities often result in inefficient use and loss of valuable irrigation water. The rehabilitation and betterment program provides for restoring such facilities to a satisfactory operating condition. Work under this program was authorized by the act of October 7, 1949, as amended by the act of March 3, 1950.

During fiscal year 1956 rehabilitation and betterment work in the Missouri Basin will include the following project programs:

Milk River, Mont.

Work will be continued to completion on the St. Mary Canal. This work involves removing slides from the main canal, installing drains, scaling, painting, and covering the lower St. Mary pipe. Other structures will be investigated and repairs, where needed, will be completed to the extent of available funds. This work will put the facilities involved in a safe operating condition and make it possible for the districts to maintain them with their regular annual collections.

North Platte project, Nebraska-Wyoming

Work will include the installation of 37,257 lineal feet of concrete pipe and 2 miles of asphalt membrane lining on 5 individual laterals. This work is necessary to prevent loss of water and damage of lands by seepage.

Shoshone project, Wyoming

Supplements to contract I79r–1586 with Willwood irrigation district will be signed during fiscal year 1955 for construction of drains. Funds will be required for progress payments on this work. Drainage facilities must be provided to prevent loss of productive lands through seepage. The 1956 program completes the current program of drain construction.

Mr. RILEY. This appropriation is largely for drainage projects on land which is already under irrigation, is it not?

Mr. CLINTON. That is correct, Mr. Chairman.

Mr. RILEY. You are having the same problem there of waterlogged land that you have had in these other projects, and this is simply correct that where possible.

Mr. CLINTON. Except not to so great a degree, Mr. Chairman, and this includes also some last finishing touches on the canal system. All of these items were agreed to with the irrigation districts when the amendatory contracts were negotiated and approved by the Congress.

These items of work were agreed to with those districts, that is, that they would be done and the project would be finished by the Government. The water users felt that the work should be done before they undertook the obligation of the last amendatory contract.

We have a program which is worked out over an economic time to get it done as needed.

Mr. RILEY. Could you give us an estimate as to how long you think it would take to complete this work?

Mr. CLINTON. I think about 2 more years will wind up the projects which are listed here.

Mr. RILEY. Now, your financial situation is that as of March 31 you had an unobligated balance of $210,482, and you have a savings here or carryover of unobligated funds into next year, of $43,000.

Mr. CLINTON. Yes, sir; there is $43,000, and in deferred work $118,000.

Now, to explain that deferred work. In all of this work we have to reach an agreement with the irrigation district before doing it. It takes a little longer to work out those agreements with the district, and in the case of these units they did not finally decide, that is, the district did not make up their minds as to what they wanted to do in the fiscal year 1955, and they decided they wanted a little more time to think about this, whether to spend the money in one place or some other place. We do not start the work until we have an agreement with the district.

Mr. RILEY. Thank you, sir.

Mr. Rabaut?

Mr. RABAUT. I want to ask you two questions. I notice here the phrase, "Drainage observation wells will be read at regular intervals."

Mr. CLINTON. Yes, sir.

Mr. RABAUT. How deep are those wells on an average?

Mr. CLINTON. They run from 10 feet to 25 feet. They extend down to reach the water.

Mr. RABAUT. Yes.

Mr. CLINTON. The water rises in those wells, and we measure down there to get the depth of the water, and then the measurements which are made show whether the water table is rising or falling. Those measurements are the guide that we use to decide when drainage is necessary.

Mr. RABAUT. How do you remove these affected areas from cultivation, that is, these areas that become waterlogged?

Mr. CLINTON. That is done by a provision in the repayment contracts. There is a provision in the repayment contracts which provides for the reclassification of land, and if land gets waterlogged, or anything else happens to it where it is unproductive, there is a provision whereby both the Bureau and the irrigation districts will go over it and make a reclassification piece by piece and if it is agreed that it is no longer productive, it is removed.

Mr. RABAUT. It is removed and abandoned?

Mr. CLINTON. Yes.

Mr. RABAUT. That is, as far as any of your activities are concerned, is that right?

Mr. CLINTON. Yes, sir; that is correct.

Mr. RABAUT. I thought you meant something different.

Mr. CLINTON. No.

Mr. RABAUT. Thank you.

Mr. RILEY. Mr. Phillips?

Mr. PHILLIPS. Referring to pages 302 and 315, you show the drainage and minor construction program on one page and rehabilitation and betterment on the other. I just wanted to ask you if those items are being repaid by the water users?

Mr. CLINTON. On the Shoshone project the work is on the Willwood division, and it is covered by the amendatory contract.

Mr. PHILLIPS. The entire amount?

Mr. CLINTON. Yes, sir.

Mr. PHILLIPS. You do not absorb any of it?

Mr. CLINTON. No, sir.

Mr. PHILLIPS. That is all, Mr. Chairman.

Missouri River Basin Project

Mr. Riley. Now, the next project is the Missouri River Basin project. If there is no objection, we will insert pages 324 to 326 of the justifications in the record at this point.

(The matter referred to follows:)

Missouri River Basin Project

ESTIMATE FOR CONSTRUCTION AND REHABILITATION (WORK TO BE DONE BY DEPARTMENT OF THE INTERIOR)

Summarized financial data

Estimated total obligations	[1] $2, 784, 283, 324
Total obligations to June 30, 1954	391, 034, 955
Allotment, fiscal year 1955	40, 514, 850
Prior year balance available	4, 114, 757
Balance available in subsequent fiscal years	−155, 700
Rescission of funds by Public Law 465, 83d Cong	−1, 700, 000
Total obligations, fiscal year 1955	42, 773, 907
Allotment, fiscal year 1956	55, 954, 000
Prior year balance available	155, 700
Balance available in subsequent fiscal years	−153, 468
Total obligations, fiscal year 1956	55, 956, 232
Balance to complete	2, 294, 518, 230

[1] Includes other Department of the Interior agencies but excludes future costs on indefinitely deferred units.

Work proposed, fiscal year 1956

The overall Missouri River Basin project fund request is outlined in this consolidated statement. Separate justifications follow for each division or unit now in an active construction stage, the Missouri River Basin investigations to be financed with construction funds, and other Department of Interior agencies participating in the basin development. Costs and program data for these separate activities are also presented by tabulation.

Continuing divisions and units ($50,906,232).—No new units are scheduled for construction during fiscal year 1956 and all activities under this heading are in connection with construction of 21 divisions and units, 8 of which are lumped into the drainage and minor construction category because of their relatively small programs. The largest portion of the funds requested will be required to make payments on contracts for work now under construction or to be placed under contract as part of the approved program. Among the major features continuing are the canal systems and Lovewell Dam in the Bostwick division, Glendo Dam and Reservoir of the Glendo unit, the pumping plant of the Helena Valley unit, the main canal for the Sargent unit, and the power transmission grid which is keyed to availability of power from main stem Missouri River powerplants. Major features to be completed in fiscal year 1956 include the Kirwin, Tiber, Pactola, and Webster Dams which will provide for the impoundment of 2,022,700 acre-feet of water now largely uncontrolled, and the Jamestown-Fargo 230-kilovolt lines and substations. Preconstruction work will be active on the irrigation facilities of several units where reservoirs are completed or under construction.

Investigations ($2,500,000).—Funds allotted to this activity will provide for continuing work on the development of plans leading to completion of the Bureau of Reclamation's work in the Missouri River Basin in an orderly fashion with the goal of optimum utilization of the basin's vast water and land resources. The investigation program is divided between advance planning and basin surveys. When the investigations under basin surveys are sufficiently advanced to delineate separable units and establish the basinwide plan of development, such units are placed in the advance planning subdivisions where more detailed investigations are carried out, preparatory to the start of construction. During fiscal year 1956, advance planning work will be resumed or started on 1 division and 1 unit and

continued on 10 such units. The draft of two definite planning reports will be completed. During the same period, work will be continued on the survey of 12 river basins, and 1 basin and 1 subbasin reports will be prepared. The investigation-type work is spread over the entire basin area with advance planning work being concentrated in the areas where local interests indicate a willingness to assume a proportionate share of the basin development responsibilities.

Other Interior agencies ($2,550,000).—These funds will be reallotted to six participating agencies for continuation of multipurpose development of the Missouri River Basin. While most of the funds expended are for direct benefit of the recipient agency in carrying out the Department of Interior's coordinated and comprehensive program for the development of the land and water resources, numerous direct benefits are realized by the Bureau of Reclamation and the Corps of Engineers in the way of surveys and streamflow data. Activities to be continued under this heading include the classification and inventory of 20 million acres of public land by the Bureau of Land Management and evaluation of mineral resources by the Bureau of Mines. The Fish and Wildlife Service will continue joint studies with the constructing agencies to insure proper wildlife protective facilities are incorporated in construction plans and specifications. The Geological Survey will collect and analyze basic data on water, land, and mineral resources and prepare maps and reports reflecting these data. Responsibility for a comprehensive plan for conservation, development, and use of outdoor recreational and historical resources will rest with the National Park Service, while the Bureau of Indian Affairs will be responsible for custodianship and management of property for aboriginal tribes residing on 26 Indian reservations.

Mr. RILEY. I believe you have a general statement, Mr. Nielsen.

Mr. NIELSEN. Yes, sir.

Mr. RILEY. You may proceed.

AUTHORIZATION OF PROJECT

Mr. NIELSEN. I would like to make the first statement about the authorization of the Missouri River Basin project.

The project was initially authorized by the Flood Control Act of December 22, 1944, Public Law 534, 78th Congress (58 Stat. 887). This act approved the comprehensive plan outlined in Senate Document No. 191, 78th Congress; revised and coordinated with the Corps of Engineers' plan shown in House Document No. 475, by Senate Document No. 247. The act authorized the construction by the Bureau of the initial stage consisting of 29 units listed on page 15 of Senate Document 191. It further authorized the appropriation of $200 million to the Bureau for the project.

This initial authorization was extended by the Flood Control Act of July 24, 1946, Public Law 526, 79th Congress (60 Stat. 641) which authorized all of the remaining units of the approved plan, and additional appropriations of $150 million.

The Flood Control Act of May 17, 1950, Public Law 516, 81st Congress (64 Stat. 170) authorized an additional $200 million to be appropriated.

Four additional units in the Niobrara River Basin, not previously included in the plan, were authorized by Public Law 612, 83d Congress (68 Stat. 757) on August 21, 1954, and on July 16, 1954, a revised plan for the Glendo unit in Wyoming was authorized by Public Law 503, 83d Congress (58 Stat. 891).

Together, these five acts of Congress authorize all of the units proposed for development in the approved plan, plus the Niobrara units—Ainsworth, Lavaca Flats, Mirage Flats Extension, and O'Neill—and the appropriation of $550 million for the project exclusive of the work of the Corps of Engineers. To date $434 million of this amount has been appropriated.

ESTIMATED COST

Then, Mr. Chairman, I have another statement on the estimated cost.

At the time of original authorization in 1944, the Bureau plan as outlined in Senate Document 191, 78th Congress, was estimated to cost $1,257,645,700 as shown by appendix 1 of the report. The Corps of Engineers plan shown in House Document 475, 78th Congress, pages 29 and 30, proposed projects totaling $661 million. These estimates overlapped to some extent and included prior authorizations. A revised estimate of the coordinated plan does not appear in Senate Document 247, however, a later analysis indicates it would have been about $1,438 million, of which $865 million was for construction by the Bureau of Reclamation. These estimates were based on price levels prevailing in 1940. Cost indexes indicate that the Bureau costs of $865 million would be about $2,225 million on the basis of the 1954 construction price level.

The current 1954 estimate of the Bureau project, comparable to $2,225 million for the original plan, is $2,693 million, or an increase in scope of about 21 percent. This change has been brought about by the following factors:

(*a*) Additional authorizations for the Niobrara Basin and the Glendo unit.

(*b*) Increases in reservoir capacities for flood control as a result of the 1948 flood-control supplemental appropriation act following a series of disastrous floods in the basin.

(*c*) Improved engineering planning and design practices for improved operating and maintenance.

(*d*) Increases in capacities of powerplants and transmission facilities as a result of later market surveys and power needs.

(*e*) Changes in size and location of irrigation units as a result of more detailed surveys, land classification, and water studies.

The original plan was based on preliminary or reconnaissance-type surveys and studies in many areas, as specified in Senate Document 191, and was dependent on the further development of the comprehensive plan. These later studies have resulted in the deletion of many units previously thought to be feasible, and changes in the designs of others, as well as the selection of alternate locations for reservoirs and irrigated areas.

AUTHORIZATION

Mr. RILEY. Do I understand from your statements that Congress reappraised this project in the 83d Congress and made some additional authorizations and appropriations?

Mr. NIELSEN. There were 2 or 3 additional authorizations.

Mr. RILEY. But in order to make those authorizations they had to be cognizant of the work that already had been done. Is that right?

Mr. NIELSEN. Yes, sir.

Mr. RILEY. So it amounted to reappraisal and reauthorization of the whole Missouri River program. Is that right?

Mr. NIELSEN. Yes, sir. Really when we come to an Appropriation Committee each year it almost amounts to a reappraisal.

Mr. RILEY. There are about 14 units, if I count them correctly, under the Missouri River Basin project. Is that correct?

Mr. NIELSEN. Yes, sir. We call them units, sir.

Mr. RILEY. Do you have approximately the same problems with regard to all of these units, or do they differ?

Mr. NIELSEN. They are quite varied, of course. These are relatively new.

Mr. RILEY. I speak of the projects up and down the Missouri River. Are they similar or do they vary, too?

Mr. NIELSEN. They vary sir. We have our two directors for the area here who can tell you the details on these projects.

(Discussion held off the record.)

BOSTWICK DIVISION, NEBRASKA-KANSAS

Mr. RILEY. The first project under the Missouri River is Bostwick division, in Nebraska and Kansas.

Without objection we will insert the project data requested and pages 333 through 335 in the record.

(The matter referred to follows:)

Missouri River Basin project, Bostwick division

Date of planning: 1938.
Date of advance planning: 1946.
Date of authorization: Dec. 22, 1944, Flood Control Act.
Original cost estimate: $8,104,000.[1]
Date of reauthorization: None.
Estimated cost at start of construction: $16,746,010.
Present cost estimate: $48,304,000.[1]
Date construction started: 1949.
Estimated completion date: After fiscal year 1961.
Remarks: Increase in estimated cost from $8,104,000 to $48,304,000 due to—

General price level changes	$15,805,800
Changes in project plan	8,076,000
Structural and engineering modifications	−2,252,000
Unforeseen conditions	234,000
Inadequacy of estimate	17,961,200
Other	375,000

MISSOURI RIVER BASIN PROJECT, BOSTWICK DIVISION, NEBRASKA-KANSAS

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$48,065,443
Total obligations to June 30, 1954		17,351,860
Allotment, fiscal year 1955	$3,600,000	
Prior year balance available	225,000	
Total obligations, fiscal year 1955		3,825,000
Allotment, fiscal year 1956	$6,784,000	
Total obligations, fiscal year 1956		6,784,000
Balance to complete		20,104,583

Work proposed, fiscal year 1956

Harlan County Dam and Reservoir.—This feature was constructed by the United States Corp of Engineers.

Lovewell Dam and Reservoir ($3,472,000).—Construction work will continue throughout the year on the prime contract for the dam which was awarded on November 22, 1954. Two minor contracts will be completed, and contracts will be awarded for clearing and for relocating gas, telephone, and powerlines, and State highway.

[1] Does not include irrigation share of cost of Corps of Engineers' Harlan County Reservoir and share of Missouri River Basin project power investment for supplying pumping energy.

Franklin Canal, laterals, and drains ($1,403,090).—Construction work will be completed on sections 3 and 4 of the canal and on section 2 of the laterals during the last quarter of the year. This work will complete the Franklin Canal and lateral system and will place this unit in full operation.

Naponee Canal, laterals, and drains.—No work is scheduled for this feature during the fiscal year 1956.

Franklin south side pumping plant, canal, laterals, and drains.—Not scheduled for construction until 1957.

Superior Courtland diversion dam.—Completed and in service.

Superior Canal, laterals, and drains.—Not scheduled for construction until fiscal year 1957.

Courtland (Nebr.) canals, laterals, and drains.—No work is scheduled for this feature during the fiscal year 1956.

Courtland (Kans.) canals, laterals, drains, substations, transmission lines, and pumping plant ($1,732,750).—Construction on sections 3, 3A, and 3B canals and laterals will be completed during the year. Construction on section 4 canal and laterals will continue during the year, and an award will be made on Miller and White Rock Creek Canals and Miller laterals and on Courtland Canal and laterals, section 5. Field data will be completed on the Courtland West Canal and laterals.

Scandia diversion dam, canal, laterals, and drains.—Not scheduled for construction until fiscal year 1958.

Bostwick floodway channels ($55,000).—Design data for this feature will start and will continue throughout the year. These channels are required to maintain the irrigability of project lands.

General service equipment ($15,000).—This amount is required for equipment, tools, and housing for operation of the completed works.

Superior service area.—No work programed in fiscal year 1956.

Lovewell cooperative development.—Not scheduled to start until fiscal year 1957.

TOTAL COST ESTIMATE

Mr. RILEY. Apparently the cost estimate here has been reduced from $52,791,000 to $48,304,000 the request for fiscal 1956; is to complete work which already is under construction. Is that correct?

Mr. WALTER. That is right.

Mr. RILEY. How did you manage to show savings on this particular unit, or this reduced estimate?

Mr. WALTER. The reduced estimates are due to a little better——

Mr. PHILLIPS. Are you talking about Bostwick, Mr. Chairman?

Mr. RILEY. Yes.

Mr. PHILLIPS. Where are the reduced estimates? $8 million originally, $48 million presently.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. WALTER. Bidding in the Franklin Canal, Courtland Canal, and the other dam we have here.

We got our competition last year, which was very keen, and the bids we received on those contracts were less than we had anticipated they would be.

Mr. RILEY. In other words, you were able to get the work done for less than the original estimate on account of the competitive bidding?

Mr. CROSTHWAIT. Yes, sir.

Mr. RILEY. Mr. Rabaut?

Mr. RABAUT. No questions.

Mr. RILEY. Mr. Phillips?

AUTHORIZATION OF PROJECTS

Mr. PHILLIPS. Mr. Chairman, I think it is commendable that the Bureau reduced the amount from $52,791,000 in the last year's justi-

fication to the present request of $48,304,000. I would like to have an explanation of how it came about that the original estimate was increased to the present $48 million from the estimated $8,104,000, which was made in 1949, which when the work started, which is only 6 years ago, was brought up to this committee.

Did you get authorization for that from the Legislative Committee?

Mr. WALTER. The initial $8,104,000 did not take in all of the projects as now conceived because of the following reasons—the first one was the increased cost of construction in that period, and the change of plans. That amounted to $23,900,000.

The engineering modifications and inadequate estimates amounted to $15 million.

Unforeseen conditions amounted to $600,000.

Mr. PHILLIPS. I am glad to have that for the record but that really wasn't my question.

Did you go and get the authorization from the Legislative Committee for these additional expenditures?

Mr. WALTER. No, sir.

Mr. PHILLIPS. You testified additional projects have come into it since the original estimation of $8,104,000.

Did you get authorization for those new projects?

Mr. WALTER. No; alteration of the original project.

Mr. PHILLIPS. You used the word "additional" in your testimony.

Mr. WALTER. I did?

Mr. PHILLIPS. Did you get authorization for that from the Legislative Committee?

Mr. CROSTHWAIT. We attempted to cover authorization on all units of the Missouri Basin through this general statement on authorization, and they are all affected by it.

For that reason we thought it would be well, as we started the so-called Missouri Basin project, to include in the record this general statement on how the Missouri Basin, insofar as the Bureau was concerned, was authorized.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. WALTER. We got a blanket authorization but not a specific authorization, Mr. Phillips.

Mr. PHILLIPS. Did the Legislative Committee have any idea that this section of it was going to cost six times what was originally contemplated?

Mr. WALTER. I am not too sure about that.

Mr. NIELSEN. They were aware that the figure before them were not the figures of actual cost because the figures presented to them were on the basis of 1940 costs. Authorizations came along in 1944.

Mr. PHILLIPS. However, 1949 would give you a reasonable opportunity to go back and say "We were a little off in our figures. We would like to tell you what it would really cost." Did you do that?

Mr. NIELSEN. I don't think so, sir.

We had authorization for the project and we apprised Congress from time to time, and the Appropriations Committees, as to the cost of our projects, and Congress was on notice.

Mr. PHILLIPS. Having said you had a blanket authorization may I have a look at the blanket authorization?

This paper you gave me is perhaps a condensation of the authorization, which is helpful, but the act—

authorized the construction by the Bureau of the initial stage consisting of 29 units listed on page 15 of Senate Document 191—

and it authorized the appropriation of $200 million to the Bureau for that project.

The initial authorization was extended by Flood Control Act of July 24, 1946, which is Public Law 526 of the 79th Congress, which authorized all the remaining units of the approved plan and additional appropriations of $150 million which gave you a top authorization of $350 million.

Then in 1950, under Public Law 516, we added $200 million more through the flood control act, which made it $550 million, so that—

together these five acts of Congress authorized all the units proposed for development in the approved plan an appropriation of $550 million.

To date $434 million of this amount has been appropriated.

The $48 million about which you are testifying at the moment is included in the $550 million.

Mr. NIELSEN. Mr. Golzé has been in contact with this since the beginning. He can best respond to it.

Mr. PHILLIPS. Is the $48 million included in the $550 million?

Mr. GOLZÉ. When fully expended, that is the estimated cost. The cost to date, the amount which has been appropriated to date, is coming out of that money, sir.

The Missouri Basin was appropriated on a lump sum.

Mr. PHILLIPS. I understand that, but I want to know whether when you add together all the different projects that you included in the original estimate for which you got $550 million, on the basis that you presently estimate they will cost, will you still be under $550 million?

Mr. GOLZÉ. No, sir. $550 million is the limit on appropriations and not limit of any cost of the project or total cost of the project.

Mr. PHILLIPS. You make distinction between limit on appropriation and the limit you may spend?

Mr. GOLZÉ. Yes, sir. We cannot ask Congress to appropriate more than the $550 million unless they give us additional authorization.

The appropriation we are asking for this year in the Missouri Basin total will bring us up to about $490 million, so we will still have a margin of $60 million to carry us through fiscal 1957.

Mr. PHILLIPS. Of the unspent portions of the estimated costs, what will the total be? You have $60 million to spend at the present time. How much do you anticipate you will have to have to conclude the work?

Mr. GOLZÉ. That would go into the total cost. The 1954 estimate of the project is $2,693 million, so we will need an authorization of something over $2 billion to finish the project as presently conceived.

Mr. PHILLIPS. Have you taken that up with the legislative committee?

Mr. GOLZÉ. No, sir, not yet. We will have to, probably not this session but the next session.

POWER REVENUES FROM BOSTWICK DIVISION

Mr. PHILLIPS. A great deal of this particular project we are talking about, the Bostwick project, is to be repaid from power revenue?

Mr. NIELSEN. Yes, sir.

Mr. PHILLIPS. According to your present estimates the income from power revenues will barely pay the cost of producing the power. Am I right?

Mr. NIELSEN. If I heard you correctly that is not my understanding.

Mr. PHILLIPS. You say it is not correct? Let me put it this way—the present interim rates you are charging for power, on your own calculations, will not pay for the power end of the project construction?

Mr. NIELSEN. That is not my understanding, sir.

Mr. PHILLIPS. Can you figure it out? You anticipate paying this over a 50-year period, do you not?

Mr. NIELSEN. Yes.

Mr. PHILLIPS. Can you give me a figure which supports your statement that it will pay for that and leave you something to pay on the reclamation end of this?

Mr. NIELSEN. Within 50 years? No, sir, I cannot give you that statement.

COST PER ACRE OF LAND

Mr. PHILLIPS. How much cost per acre does this put against the reclamation land that is usable?

Mr. NIELSEN. That would vary within different projects.

Mr. PHILLIPS. Talking about Bostwick?

Mr. NIELSEN. $484 per acre.

Mr. PHILLIPS. $484 per acre was on the basis of $48 million or $52 million?

Mr. NIELSEN. On $48 million.

Mr. PHILLIPS. What would you say the present value, before you put the water in, was of the land in the Bostwick project?

Mr. NIELSEN. Mr. Walter is more familiar with that than I am.

Mr. WALTER. Present value of the land?

Mr. PHILLIPS. Present value of the land before you put this water on it.

Mr. WALTER. The original estimates——

Mr. NIELSEN. The going price of the land.

Mr. RILEY. Before it was irrigated.

Mr. WALTER. Before it was irrigated it was classed as corn and wheat land and sold at about $75 an acre at best.

Mr. PHILLIPS. Is there irrigated land now in the district?

Mr. WALTER. Yes, sir.

Mr. PHILLIPS. What is that selling for?

Mr. WALTER. We don't have any right now in this district. North Platte is the nearest.

Mr. PHILLIPS. You said a moment ago that you did. Did I misunderstand you?

Mr. WALTER. That we sold land?

Mr. PHILLIPS. No. I asked you if you had irrigated land in this district which you could compare with it and I thought you said "Yes."

Mr. WALTER. I didn't understand that, sir.

Mr. PHILLIPS. Can you figure a price of irrigated land now in that district?

Mr. WALTER. It ranged from, in the North Platte Valley in Wyoming and Nebraska, from $250 to $350 for first-class land, and that is in Wyoming——

Mr. PHILLIPS. Are you going to get enough for the land to add $484 an acre to it?

Mr. WALTER. In Nebraska it is between $400 and $500. That is in the North Platte area.

Mr. PHILLIPS. You are up really to about $650 an acre when you get this completed. You have to recover $650 an acre to recover the actual cash outlay. Could you do that? Will the land in that area sell for $650 an acre?

Mr. WALTER. No, sir, I don't think right now it will sell for that.

Mr. PHILLIPS. I think by the time you get all through with this you will have to sell it for around $750 an acre, that is, including the bare-land value, in order to recover the money we are putting in. Can you justify that?

Mr. NIELSEN. I would like Mr. Dominy to talk on that.

Mr. DOMINY. Your question was first addressed to the dryland value.

Mr. PHILLIPS. I am trying to figure out whether we can justify putting $500 an acre on the land on any economic basis, what it will produce or what its worth will be on resale.

Can we do that?

Mr. DOMINY. This Bostwick Division is fairly close to the area where I was born and reared in Nebraska. I still have farming interests there.

I would say the dryland value of the farms in this Bostwick Division in Nebraska and Kansas, depending upon the shape the farm is in, would run somewhere between $100 and $200 an acre in dryland value at current prices.

Mr. PHILLIPS. Can we justify, then, $700 or $800 an acre?

Mr. DOMINY. Under irrigation my best guess at current land values would be that it would sell somewhere between $300 and $500 an acre.

Mr. PHILLIPS. Which is less than the amount we are putting on this in cash.

Mr. DOMINY. That is unquestionably true in most of the Missouri Basin units.

Mr. PHILLIPS. Without charging the interest that the Government pays in the meantime?

Mr. DOMINY. That is right. I think that will be unquestionably true in practically every one of the Missouri Basin units. If you add to the dryland values the actual cash expenditure per acre, and put it into irrigation, that would be a value greater than you could expect to capitalize in the farm real-estate market.

Mr. PHILLIPS. Then we have to get other value.

Mr. DOMINY. So we have to justify it in some other way, in terms of converting an area which is plagued with the ups and downs of dryland agriculture into a stabilized irrigated agriculture.

Mr. PHILLIPS. We really have to face some day, the questions we are discussing, not only of economic values but social values, and the subsidy for the purpose of protecting an area for its people.

Mr. DOMINY. That is right, sir.

Mr. PHILLIPS. Where is the Scandia area? Is that part of this project?

Mr. WALTER. The lower end of this project, sir.

Mr. PHILLIPS. What will be the additional cost for putting the water on that project per acre when you have to take into consideration carrying it down there and all the incidental facilities that have to be built? Where are you going to carry it from?

Mr. WALTER. This map will not show it. We have a larger map.

The book map shows it, Mr. Phillips.

Mr. CROSTHWAIT. Page 337 shows it.

Mr. PHILLIPS. Where will you have to carry water from to put it down in the Scandia project?

Mr. WALTER. Harlan County Reservoir.

Mr. PHILLIPS. Have you made adequate provision for watering all the land down in the Scandia extension?

Mr. WALTER. Not all of it.

Mr. PHILLIPS. How much will it cost per acre, which I think will be considerably higher than the $500 or $600 we are already contemplating for the rest of the project? Am I right?

Mr. WALTER. The cost of putting water down through the whole system is the same. It is spread out over the whole area.

Mr. PHILLIPS. You mean you have taken an average?

Mr. WALTER. That is right.

Mr. PHILLIPS. Can you answer my question? How much will it cost to put it down to Scandia, per acre or any way you want to figure it?

Mr. DOMINY. We would be using the river, from Harlan County Dam we would use the river for the canal.

Mr. PHILLIPS. That already exists?

Mr. DOMINY. Yes, to where the Scandia diversion dam would be put in the river, so it could easily be that Scandia, on a per acre basis, would be constructed at considerably less than some of the other lands which are served through the longer canal.

My own judgment is that that would be true. This figure we have given here, of course, is an average for the whole unit development.

Mr. PHILLIPS. I have only one more question.

CROPS

You said this had been a wheat country and sugar-beet country. Is that right?

Mr. DOMINY. Sugar beets are not grown on dry land. It is wheat and corn country.

Mr. PHILLIPS. What will it be after the water is on the land? They cannot afford to grow wheat and corn?

Mr. DOMINY. Corn, yes. They will continue to grow corn under irrigation in Nebraska and Kansas. You can get tremendous increases in yields of corn under irrigation.

You cannot increase the wheat yield sufficiently to maintain it under irrigation and it would go out very rapidly.

For the wheat would be substituted an alfalfa-livestock economy with the corn, I think.

There may, of course, be some trucking to the extent that the neighboring towns will absorb it, and there will be possibly sugar beets, depending upon the amount of sugar that the domestic grower is permitted to produce.

CROP FAILURES BEFORE IRRIGATION

Mr. RILEY. Mr. Dominy, how often did you have a crop failure in this area before you put in irrigation?

Mr. DOMINY. As you undoubtedly know, the Great Plains area of Nebraska and Kansas is a feast and famine country. Sometimes it goes, as it has done in the past 12 and 13 years, without a real crop failure for a considerable period. Then again you will hit a period, as existed between 1930 and 1938, where you had only a year or two where you grew very much of anything. The drought was not intermittent but almost constant during that period.

Mr. RILEY. What happened to the farmers in that area from 1930 to 1938?

Mr. DOMINY. There was a great exodus in that whole Great Plains area during the drought of the thirties, and if you have been studying the population trends during this recent decade, when the United States as a whole has been making tremendous population increases, you will find that Nebraska, South and North Dakota, and Kansas, have been making a very small increase in population.

People still are emigrating from the areas I mentioned, and the big increases have been on the West Coast, East Coast, and in the South.

Mr. RILEY. In your opinion is that because of the fluctuations in the income, and the problems incident to maintaining a more or less level production?

Mr. DOMINY. That is right. The reason the west coast, for example, has a marked increase in population is because of the industries and agricultural opportunities that are there, and in this middle Great Plains area the opportunities have not been there.

We hope through irrigation development that we will help to stabilize the area. The principal economic base of that area is agriculture, and this program, if it can be justified at the costs we have, must be justified on that basis, that it will help to stabilize the economy of a major segment of our great country.

ECONOMIC EFFECT OF IRRIGATION

Mr. RILEY. What has been your experience in the area which has been made available to irrigation?

Mr. DOMINY. Actually, except for the North Platte project which is on the west border of this semihumid area and is not fully typical of the more humid areas, such as is typified by the Bostwick area, it certainly is an ample demonstration that with a sufficient and permanent irrigation water supply that the economy of the area will be stabilized.

There is one area just to the west of Hastings, Nebr., which is directly north of this Bostwick country, where irrigation under the tricounty project was put into effect about 20 years ago, and that area has shown the marked effect of stabilized agriculture from irrigation.

Mr. RILEY. Is any of this area in the section which is subject to these intensive dust storms?

Mr. DOMINY. Fortunately, Mr. Riley, the real heart of the dust problem is in the area farther west and south. The cancer of the Dust Bowl area is in southeastern Colorado, southwestern Kansas, Panhandle of Oklahoma and Texas, and northeastern New Mexico.

That cancer area spreads out under prolonged drought and in the 1930's it actually affected millions of acres over all of that Great Plains area. But the dust storms you read about in the paper recently—the wind storms which brought dust up to 16,000 feet in the air and actually sometimes brings it clear back over the eastern cities—most of that comes from what I call the cancer area of the Dust Bowl. That area is farther south and west, where the rainfall never is as great as it is in the Bostwick country and where the average wind velocity is much higher.

Mr. PHILLIPS. That raises a question on two points. One is that if you have a Dust Bowl storm which is affecting the area in which this project is being built, why won't that fill some of your canals so they have to be constantly cleaned out?

Mr. DOMINY. This area of the Bostwick has never actually drifted soil into the fence rows, and we do not anticipate any problem of that nature even though a good part of the land——

Mr. PHILLIPS. What are you lining the canals with?

Mr. WALTER. Concrete and compacted earth linings.

Mr. PHILLIPS. Are you sure that in the same time where a dust storm will be produced elsewhere that you will have in your canal enough water to irrigate the amount of land which you contemplate selling to people to use irrigated land?

Mr. DOMINY. We take into account these very deficient rainfall years and we have carryover storage in the series of reservoirs which will furnish water to this project.

Mr. WALTER. Did you understand we were settling this land? This is already settled land, all of this land is settled now.

Mr. PHILLIPS. I spoke of settling the land as if you were putting new settlers on it.

You have no new settled area but this is land on which for the first time you will put water by laterals?

Mr. WALTER. That is right.

Mr. PHILLIPS. I have another question which becomes important on Mr. Walter's last statement. May I ask it here?

Mr. RILEY. Yes.

Mr. PHILLIPS. If that is a fact, then you are putting irrigation on what percentage of the existing land?

Mr. WALTER. I would say over 90 percent. There is some pump irrigation.

Mr. PHILLIPS. Are you going to affect the economy of the whole area by applying water to a certain portion of it by irrigating methods? Will you adversely effect the adjoining territory?

Mr. WALTER. Oh, no. I do not believe so.

FRENCHMAN-CAMBRIDGE DIVISION

Mr. RILEY. The next unit is the Frenchman-Cambridge division in Nebraska.

Without objection we will insert the project data and pages 342 and 343 in the record.

(The pages referred to are as follows:)

Missouri River Basin project, Frenchman-Cambridge division

Date of planning: 1939.
Date of advance planning: 1946.
Date of authorization: Flood Control Act of Dec. 22, 1944.
Original cost estimate: $26,894,500.
Date of reauthorization: None.
Estimated cost at start of construction: $19,839,039.
Present cost estimate: $70,185,000.
Date construction started: 1947.
Estimated completion date: 1960.

Remarks: Increase in estimated cost from $26,894,500 to $70,185,000 due to—

General price level changes	$19,013,900
Change in project plan	20,286,600
Structural and engineering modifications	1,123,000
Unforeseen conditions	654,000
Inadequacy of estimate	1,468,000
Other	745,000

MISSOURI RIVER BASIN PROJECT, FRENCHMAN-CAMBRIDGE DIVISION, NEBRASKA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$69,702,921
Total obligations to June 30, 1954	49,043,261
Allotment, fiscal year 1955	1,000,000
Total obligations, fiscal year 1955	1,000,000
Allotment, fiscal year 1956	1,500,000
Total obligations, fiscal year 1956	1,500,000
Balance to complete	18,159,660

Work proposed, fiscal year 1956

Completed facilities.—Completed in fiscal year 1955 or prior years.

Deferred facilities.—Deferred until fiscal year 1957 and future years.

Trenton Dam and Swanson Lake ($30,000).—Program for fiscal year 1956 for liability of Government for deferred maintenance on C. B. & Q. railroad relocation.

Cambridge diversion dam, canal, laterals, and drains ($40,000).—The program for the fiscal year 1956 will place under construction the required farm outlet drains for lands under the Cambridge Canal. This is the minimum program of drainage provisions that can be undertaken under the terms of the existing Frenchman-Cambridge repayment contract. The major part of the drainage feature, constituting subsurface drainage, will remain in an indefinitely deferred status.

Bartley diversion dam, canal, laterals, and drains ($40,000).—The program for the fiscal year 1956 will place under construction the required farm outlet drains for lands under the Bartley Canal. This is the minimum program of drainage provisions that can be undertaken under the terms of the existing Frenchman-Cambridge repayment contract. The major part of the drainage feature, constituting subsurface drainage, will remain in an indefinitely deferred status.

Meeker-Driftwood temporary diversion dam, canals, laterals, and drains ($921,920).—During the fiscal year 1956 compilation of field data will be completed and preparation of plans and specifications will be initiated for Driftwood Canal, Driftwood subcanal, Meeker Canal extension, Driftwood sublaterals, Meeker extension laterals, and the remainder of Meeker-Driftwood lateral system (outside present irrigation district). Compilation of field data, preparation of plans and specifications, and an award of contract are anticipated for the upper Meeker Canal and the upper Meeker subcanal.

Frenchman diversion dam, canal, laterals, drains, and floodways ($400,000).—During the fiscal year 1956 construction will be started and completed on the

Riverside Canal and laterals. This is a small portion of the Frenchman unit canal and lateral system, which lies within the boundaries of the existing Frenchman-Cambridge Irrigation District. Field data will be completed on the Culbertson Canal and laterals.

TOTAL COST ESTIMATE

Mr. RILEY. Last year the estimate on that was $73,243,000. That has been reduced at the present time to $70,185,000.

Is the reason for that the same reason as advanced for the Bostwick division, that you got better contracts than you anticipated?

Mr. CROSTHWAIT. No, sir. This decrease is a composite of some pluses and some minuses. Major decreases were those resulting from changes in the plan of development of the meeker driftwood in the Frenchman and lateral system.

Mr. RILEY. You found a cheaper method?

Mr. CROSTHWAIT. I think there was some reduction in those canals during that period.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. RILEY. Through engineering studies and experience you found that it would take less in the way of canals than it was at first contemplated. Is that right?

Mr. WALTER. The whole area involved a new physical plant and eliminated a tunnel, which would have been very costly. That was the important reduction in cost.

Mr. RILEY. You found you would get adequate water without this tunnel?

Mr. WALTER. That is right.

Mr. RILEY. Mr. Phillips?

TOTAL ACREAGE UNDER IRRIGATION

Mr. PHILLIPS. Suppose you put water on this part of the area you have been discussing under Bostwick, and which you are now putting under Frenchman-Cambridge, which is nearby. In the whole area of this project which could be considered as being in the Dust Bowl area, what percentage of that are you putting under water, or irrigation?

Mr. DOMINY. We could give you for the record the tillable land, Mr. Phillips, in these Great Plains States west of the 100th meridian, and then give you a total of our anticipated acreage.

Mr. PHILLIPS. All right. I would like to see that.

Mr. DOMINY. It is a small percentage.

Mr. PHILLIPS. You see what I have in my mind? First of all, if you put a certain portion of it under irrigation, you may have affected the economy of the remaining acreage which has been competitive, from marketing to living standards.

Second, if you are putting only a small percentage under irrigation you really are not doing very much as a contribution to solving this Dust Bowl problem in that particular area, and if you figure that out for me, all right.

(The matter referred to follows:)

Agricultural lands in Missouri River Basin States

[Acres]

State	Land available for crops [1] (1)	Area irrigated, 1944 [2] (2)	New land to be irrigated Missouri River Basin project [3] (3)	Total ultimate irrigated area, Missouri River Basin [4] (4)	Area presently irrigated [5] (5)
Montana	14,042,423	1,245,524	967,130	2,212,654	1,395,583
Wyoming	3,134,407	962,437	281,560	1,243,997	1,067,022
Colorado	7,167,182	988,948	101,280	1,090,228	1,054,678
North Dakota	27,100,920	22,814	1,266,440	1,289,254	35,294
South Dakota	23,169,296	52,895	961,210	1,014,105	78,069
Nebraska	25,414,860	631,762	989,445	1,621,207	867,252
Kansas	14,762,870	1,114	193,335	194,449	10,981
Total	114,791,958	3,905,494	4,760,400	8,665,894	4,509,401

[1] Data from Census of Agriculture 1940.
[2] Data from Census of Agriculture, 1950, Missouri River Basin project authorized 1944.
[3] Authorized new irrigated acreage, Missouri River Basin project, S. Doc. No. 191, 78th Cong., 2d sess.
[4] Total column 1 plus column 3.
[5] Data from Census of Agriculture, 1950, latest available comprehensive source.

COST OF REPAYMENT IN BOSTWICK AND FRENCHMAN-CAMBRIDGE DIVISION

Mr. PHILLIPS. The other question I had had to do with the cost of repayment.

I have a note here that the cost of repayment in the Bostwick area is roughly $170 per acre. I got it from some paper I have here.

Do you accept that figure?

Mr. NIELSEN. At Bostwick?

Mr. PHILLIPS. Yes.

Mr. NIELSEN. $170 is right.

Mr. PHILLIPS. And in Frenchman-Cambridge, repayment is $125.

Mr. NIELSEN. Yes, sir.

Mr. PHILLIPS. Yet the cost per acre in Frenchman-Cambridge is practically $900 an acre and the cost in Bostwick is some $250 less than that, or about $650.

Mr. NIELSEN. Cost repayable by irrigators is related to their ability to pay.

Mr. PHILLIPS. According to your calculations, when you set up the Bostwick project, you showed a greater net income per acre on the Frenchman-Cambridge than for Bostwick.

Mr. NIELSEN. That would be related to many things, including investment, crop returns.

Mr. PHILLIPS. It still shows a greater net income per acre, no matter how you figure it. Is that right?

Mr. DOMINY. Yes. If I may attempt to explain the difference there.

Part of this payment ability calculation breaks down in the final analysis to repayment willingness on the part of the farmers.

Mr. PHILLIPS. You mean the people of Frenchman-Cambridge objected more strenuously to repayment and they got a better deal?

Mr. DOMINY. Part relates to the maintenance and operation cost.

Mr. PHILLIPS. We don't want that left on the record or all the repayments will be reduced if it is based on the ability of the water users to object.

I find it difficult to adjust my mind to the methods of calculation used by the Bureau.

Mr. DOMINY. There is no way that I can argue here from our own figures. Frenchman-Cambridge shows net increase capacity to pay by reason of irrigation over dry land of $9.90 whereas Bostwick shows only $8.96.

Operation and maintenance on Frenchman-Cambridge is actually less than it is on Bostwick, and yet we did get a contract with a greater construction repayment on Bostwick than we did on Frenchman-Cambridge.

Mr. WALTER. The Bostwick repayment contract was renegotiated and upped to the figure you quoted, and we now have before the Frenchman-Cambridge project a repayment contract under negotiation to raise that practically to the same as Bostwick.

That was due to an increase in cost of distribution system drainage mostly, and the water users pay that direct in the repayment contract. That accounts for the difference.

Mr. DOMINY. So in summary, then, Mr. Phillips, when we get this amended contract on Frenchman-Cambridge this discrepancy should not exist.

Mr. WALTER. That is right.

GLENDO UNIT

Mr. RILEY. Next project is the Glendo unit. Without objection we will insert the project data and pages 349 and 350 into the record.

(The matter referred to follows:)

Missouri River Basin project, Glendo unit

Date of planning: 1944.
Date of advance planning: 1947.
Date of authorization: Flood Control Act of Dec. 22, 1944.
Original cost estimate: $4 million.
Date of reauthorization: Act of July 16, 1954 (68 Stat. 486).
Cost estimate at reauthorization: $50,859,000.
Present cost estimate: $44,300,000.
Estimated completion date: 1954.
Estimated date of functional completion: Fiscal year 1961.
Remarks: Act of July 16, 1954, approved definite plan report for Glendo unit including Fremont Canyon powerplant and authorized construction.

MISSOURI RIVER BASIN PROJECT, GLENDO UNIT, WYO.

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$44,300,000
Total obligations to June 30, 1954		850,590
Allotment, fiscal year 1955	$1,000,000	
Total obligations, fiscal year 1955		1,000,000
Allotment, fiscal year 1956	6,000,000	
Total obligations, fiscal year 1956		6,000,000
Balance to complete		36,449,410

Work proposed, fiscal year 1956

Glendo Dam and Reservoir ($4,771,000).—Construction of the dam and power tunnel will continue and progress payments will be made on a prime contract awarded November 27, 1954. Completion on this contract is anticipated during

fiscal year 1958. Funds are also required to initiate a contract for relocation of 5.96 miles of the Chicago, Burlington & Quincy Railroad and to procure land and land rights for the Glendo Reservoir area.

Glendo powerplant ($850,000).—Work will continue under the prime contract awarded November 27, 1954, and progress payments will also be made on materials contracts to be awarded late in fiscal year 1955. Construction of the powerplant is coordinated with the schedule of completion of the dam.

Fremont Canyon powerplant.—No construction activity scheduled till fiscal year 1957.

Glendo switchyard, 115-kilovolts.—No construction activity scheduled till fiscal year 1957.

Fremont Canyon switchyard.—No construction activity scheduled till fiscal year 1957.

Glendo general property.—No funds requested till fiscal year 1957.

Fremont Canyon general property.—No funds requested till fiscal year 1957.

STATUS OF PROJECT

Mr. RILEY. Funds requested appear to be for the continuation of construction of the Glendo Dam and powerplant. Again we have a reduction in the estimate from last year's estimate from $50,859,000 to $44,300,000.

Why were you able to give this decreased estimate?

Mr. NIELSEN. It has come about by using more accurate field data and reducing the quantities previously estimated.

Mr. RILEY. What is the target date for the completion of this Glendo Dam?

Mr. WALTER. The dam and powerplant are to be completed by early in fiscal 1959. We have the Fremont Canyon powerplant in 1961.

Mr. RILEY. First units to come on in 1959?

Mr. WALTER. Yes, sir. Fremont will be in 1961.

Mr. RILEY. Mr. Phillips?

AUTHORIZATION AND COST

Mr. PHILLIPS. This project was started in 1944, that is planning stage, officially set up in 1947, construction began last year in 1954.

Somewhere in there when you started to set up the price you estimated it at $4 million. You estimate now $44,300,000. What changes have you made?

Mr. NIELSEN. On that $4 million figure you will see a footnote, Senate Document 191 figure. That is based on 1941 costs which appear in Senate Document 191.

Mr. PHILLIPS. Then did you tell the legislative committee you would have to pay 11 times that much?

Mr. NIELSEN. Not so far as I know.

Mr. PHILLIPS. Then when you went over to the Senate last year you told the Senate——

Mr. CROSTHWAIT. May I correct that? We got a specific authorization for Glendo last year.

Mr. NIELSEN. That is right. Excuse me.

Mr. CROSTHWAIT. At which time the costs were shown at substantially the last figure you mention now.

Mr. PHILLIPS. Then you went over to the Senate in 1955. You told the Senate it would cost $52,476,000.

Mr. CROSTHWAIT. Subsequent to that time we have gotten out the actual bids on Glendo Dam and powerplant and those have resulted in substantial decreases in that estimate.

Mr. PHILLIPS. Did you leave off anything?

Mr. CROSTHWAIT. We had more accurate field data and some of the quantities which were estimated to go into that dam were reduced as a result of more accurate field data, plus the fact that we did get good competition on those specifications and the actual bids were less than we had estimated they would be.

Mr. PHILLIPS. Let me get this date fixed up, because I have a conflict of dates now in the book.

I cannot find the date. The last date that I find is July 13, 1954, the supplemental appropriation bill of 1955. Did we bring that to the floor in July of last year? This is a year ago.

Mr. SANDERS. Yes, sir.

Mr. PHILLIPS. On July 13 last year you testified to the Senate committee that the current estimate was $52,476,000. Now you have testified, Mr. Crosthwait, that you have reduced that figure to the present $44.3 million by a process of better contracting.

Mr. CROSTHWAIT. No; by a process of having obtained more accurate field data of the conditions particularly at this dam site, and of the quantities that would be required in the building of the dam.

Mr. PHILLIPS. What you say is that the estimated cost of Glendo has been decreased from $50,859,000 to $44.3 million.

Mr. RILEY. That is the decrease from last year.

Mr. PHILLIPS. From your estimate to us of last year?

Mr. CROSTHWAIT. That is correct.

Mr. PHILLIPS. Can you show me an estimate of last year, Mr. Clerk, of $50,859,000?

Did you justify Glendo to the House last year, Mr. Nielsen?

Mr. NIELSEN. I was not here. Perhaps Mr. Crosthwait might know.

Mr. PHILLIPS. Was this justification to the Senate in the supplemental not the first time it appeared?

Mr. CROSTHWAIT. I think that is correct. We got money for it the first time last year.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. PHILLIPS. I do not think this is important, but I lean toward accuracy.

Why do you say that you are reducing it from $50 million to $44 million, when last year you said the price was going to be $52.5 million? Do you want to roll up Mr. Dominy again?

Mr. CROSTHWAIT. No. I do not know exactly why there was a difference in the estimate at that time. It was probably our best estimate at that time. We had not taken the bids.

Mr. PHILLIPS. Evidently at the time you made the estimate of $52 million to the Senate you must have thought it was going to cost $50.8 million, because those were the figures you had used over in the Bureau of the Budget, and those were the ones you referred to this year, when you are reducing it from $50.8 million to $44.3 million.

Mr. NIELSEN. Of course, there is a considerable lapse of time there because the estimate which went into last year's program document was developed in April 1953.

Mr. PHILLIPS. Which one did you present to the Bureau of the Budget?

Mr. NIELSEN. That is what I am trying to get at now.

Mr. PHILLIPS. $44 million. What is the Bureau of the Budget's opinion about all of this change of figures?

Mr. NIELSEN. It was $52 million. The $50 million figure appeared in our justifications last year.

Mr. PHILLIPS. Which one did you present to the Bureau of the Budget? We have 3 figures now, all within 10 months or less than that; all within 9 months. Which one did you present to the Bureau of the Budget?

Mr. CROSTHWAIT. I do not know. We will have to look that up and put it in the record.

(The information is as follows:)

Glendo unit cost estimates

Budget estimate presented to Bureau of Budget:

1955	$50, 859, 000
1956	44, 300, 000

Mr. PHILLIPS. What did the Bureau of the Budget say about that figure? Did they make any statement?

Mr. CROSTHWAIT. They made no statement other than that they did go along with the estimate of $1 million for this current fiscal year for starting construction of Glendo.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. PHILLIPS. May I put in the record something which I now shall quote from the Bureau of the Budget:

> Accordingly the Bureau of the Budget would interpose no objection to the adoption by the Congress of the revised project recommended in the report of the Commissioner of Reclamation, provided that the authorization to proceed with construction specifically requires that rates for power and irrigation water be established to recover the full investment cost of the project allocated to reimbursable purposes over a period of not more than 50 years, with interest for all purposes except irrigation, in addition to normally expected operating, maintenance, replacement and overhead costs.

Does the contract provide for a reimbursement for all of those within 50 years?

Mr. CROSTHWAIT. That, it seems to me, would have to go back to the authorizing act, which was passed by Congress.

Mr. PHILLIPS. That was in 1947, I presume.

Mr. CROSTHWAIT. That was reauthorized last year.

Mr. PHILLIPS. That is the one we are talking about, that was reauthorized last year?

Mr. CROSTHWAIT. Yes, sir.

Mr. PHILLIPS. You do not know what it is. As I recall it, it was a joint resolution; is that right?

Mr. GOLZÉ. I believe it was a formal act of Congress.

Mr. PHILLIPS. I believe that is all, Mr. Chairman.

I see here it says "during the 50-year repayment period." The answer is "Yes," Mr. Chairman. Thank you very much.

I presume the rates set up are scheduled to do that; is that right?

Mr. CROSTHWAIT. Yes, sir.

Mr. DOMINY. That is the assurance we give in the printed justifications which we have before this committee.

HANOVER-BLUFF UNIT, WYOMING

Mr. RILEY. The next unit is the Hanover-Bluff unit in Wyoming. Without objection we will insert the project data in the record and also pages 356 and 357 of the justifications.

(The information is as follows:)

Missouri River Basin project, Hanover-Bluff unit

Date of planning: 1942.
Date of advance planning: 1953.
Date of authorization: Dec. 22, 1944, Flood Control Act.
Original cost estimate: $587,000.
Date of reauthorization: None.
Present cost estimate: $3,383,000.
Date construction started: 1955.
Estimated date of functional completion of construction: Fiscal year 1957.
Remarks: Increase in estimated cost from $587,000 to $3,383,000 due to—

General price level changes	$933, 623
Changes in project plan	816, 300
Structural and engineering modifications	−47, 830
Inadequacy of estimate	1, 029, 084
Other	64, 823

MISSOURI RIVER BASIN PROJECT, HANOVER-BLUFF UNIT, WYOMING

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$3, 383, 000
Total obligations to June 30, 1954		209, 198
Allotment, fiscal year 1955	$450, 000	
Total obligations, fiscal year 1955		450, 000
Allotment, fiscal year 1956	$1, 250, 000	
Total obligations, fiscal year 1956		1, 250, 000
Balance to complete		1, 473, 802

Work proposed, fiscal year 1956

Highland-Hanover area

Pumping plants, canals, and conduits ($723,739).—Contracts will be awarded in February of fiscal year 1955 for the four pumping plants on the Highland Hanover area, and in September 1955 for the Highland Hanover Canal. The Hanover Irrigation District started work in November of fiscal year 1955 on rehabilitation of the main canal for the Highland Hanover and Bluff areas. These funds will be required to support the activities of the contractors at an efficient and economical rate.

Hanover laterals ($76,573).—Contract for the construction of these laterals will be awarded early in fiscal year 1956. Funds are required for payment on this contract and supporting activities.

Hanover drains ($2,000).—In order to maintain a complete record of groundwater table before and after introduction of water on the new area, it is necessary to read the groundwater wells that were constructed in fiscal year 1955. These funds are required for this work.

Hanover distribution lines and substation ($75,610).—These funds are required for progress payments under contracts for construction of 8.85 miles of 34.5-kilovolt distribution lines and 4 substations which will be awarded in fiscal year 1955.

Hanover farm unit development ($2,000).—For initiation of studies to permit orderly layout of units concurrently with completion of irrigation facilities.

Upper Bluff area

Pumping plants, canals and conduits ($184,846).—These funds are for progress payments on contract for construction of two pumping plants to be awarded in fiscal year 1955 and which will continue throughout fiscal year 1956. The funds will also provide for progress payments to Bluff Irrigation District for continued payment on contract earnings on the interconnected canal between the Hanover

and Bluff Canals which will be awarded late in fiscal year 1955, and for payments to irrigation district for canal enlargement.

Bluff laterals (*$128,095*).—These funds are required for the purpose of initiating construction on the lateral system in the Upper Bluff area.

Bluff drains (*$2,000*).—In order to maintain a complete record of groundwater table before and after introduction of water on the new area, it is necessary to read the groundwater wells which were constructed in fiscal year 1955. These funds are for this purpose.

Bluff distribution lines and substations (*$25,103*).—These funds are required for progress payments on contracts for 1 mile of distribution line and two 150-kilovolt-ampere substations, which will be awarded in fiscal year 1955.

Bluff farm unit development (*$1,000*).—For initiation of studies to permit orderly layout of unit concurrently with completion of irrigation facilities.

REPAYMENT

Mr. RILEY. What is the status of the repayment contract for the upper Bluff and Highland Irrigation District?

Mr. CLINTON. The election was held, Mr. Chairman, on April 5, with practically 100 percent majority voting for it, and the contract will now go to the court for confirmation. It is on the docket in May, but a definite date has not been set. I expect in another 2 or 3 weeks we will have it confirmed by the court.

POWER RATES

Mr. RILEY. Where will the power come from for the pumping plants for this particular unit?

Mr. CLINTON. It will be taken off the Missouri River Basin power system. We have a transmission grid coming down the valley.

Mr. RILEY. Have you let any construction contracts on this unit?

Mr. CLINTON. Yes, we have let two construction contracts. One is for the supplying of the pumps for the pumping plants, and one is for the construction of the pumping plants themselves. Those two contracts were awarded on April 7. We did not award them until after the election on the repayment contract.

Mr. RILEY. Could you give me the power rate on which the feasibility of this project is justified?

Mr. CLINTON. It is a 2½ mill rate at the Bureau substation, Mr. Chairman. It is the standard Missouri River Basin pumping power rate, the irrigation pumping power rate.

Mr. RILEY. Do you think that rate can be sustained, or will it have to be increased at a later date?

Mr. CLINTON. We do not anticipate any increase in the irrigation pumping power rate.

Mr. PHILLIPS. You could not do it legally, could you, without reopening the contract?

Mr. CLINTON. We would have to reopen the contract.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. RILEY. If you should find that the rate had to be increased what would be the situation in regard to this unit and other units that use power from the Missouri Basin?

Mr. CLINTON. If that does happen, Mr. Chairman, the result is that the payment capacity is still the same. It follows then that more of their payment capacity will have to go for O. and M., which includes the power bill, so less will be available to apply on construction cost repayment. So they will pay less over a given period of time on construction.

Mr. PHILLIPS. I did not understand Mr. Clinton's answer to one question. Did you say that the contracts have been executed?

Mr. CLINTON. The repayment contracts for the construction obligation have not been executed.

Mr. PHILLIPS. Actually executed?

Mr. CLINTON. They have not been executed. The election has been held.

Mr. PHILLIPS. Has construction started?

Mr. CLINTON. The contract for construction has been let.

Mr. PHILLIPS. Is that not a change in Bureau policy? Are you now starting work before you have your contracts signed?

Remember that you testified before on new projects where you are going to put water on land and then bring the settlers on the land. Now you are testifying about a project where the farmers are already on the land and want to put water on that land.

Mr. CLINTON. We feel, Mr. Phillips, that if you hold an election and you have no objectors at the election our past experience has been that there has never been any question about the district board executing the contract, and no question about the court confirming it. If we had objectors who appeared at the election and voted against the repayment contract we would have felt leery about it and would have held up going ahead.

Mr. PHILLIPS. In how many previous projects have you signed the contracts before you had the signatures for repayment of the farmers?

Mr. CLINTON. I cannot tell you how many. Do you know, Mr. Dominy?

Mr. DOMINY. Mr. Phillips, this is an ever-recurring problem in connection with reclamation construction. We do have a policy of not starting construction on distribution system works in the absence of a repayment contract.

As Mr. Clinton has just stated, with a districtwide election which actually is for the purpose of authorizing the district officials to execute a contract—and the contract is specific and each irrigator had an opportunity to examine it—we feel reasonably safe. In a short construction season like there is in Wyoming it would make all the difference in the world whether we awarded that contract in April of 1955 or whether we held it up until after a Court confirmation. In this case we did say, "Go ahead."

Now, as to your general question as to how many contracts have we gone ahead on without having a repayment contract in advance. I do not know of any in recent years where we have actually started construction on distribution systems in the absence of at least having an election on an approved contract, except those public lands projects like the Yuma-Mesa division of the Gila and the Heart Mountain division of the Shoshone.

Mr. PHILLIPS. Those are where you have brought settlers in?

Mr. CLINTON. That is right.

Mr. PHILLIPS. That is a different question.

Mr. CLINTON. That is right.

Mr. PHILLIPS. What about Bostwick? You have testified you are going to put water on land already farmed. Did you agree to contract before you got the settlers or the people there presently on the land to put their signatures down?

Mr. DOMINY. In the case of the Bostwick the storage reservoir is being constructed by the Army Corps of Engineers, Harlan County Dam, which is primarily for flood control but does provide storage for the Bostwick unit. That was justified primarily for flood control. Reclamation had a repayment contract with the two Bostwick Irrigation Districts before starting construction on the canals.

ACREAGE COSTS

Mr. PHILLIPS. How many acres are there in the Hanover unit?

Mr. CLINTON. There are 6,153 acres in the Hanover unit.

Mr. PHILLIPS. How many acres are there in the Bluff unit?

Mr. CLINTON. 1,242 in the Bluff. The total is 7,395.

Mr. PHILLIPS. 6,153 and 1,242. The Bluff unit apparently is broken into two separate service units; that is, for the laterals; is that right?

Mr. CLINTON. No, the Bluff is one.

Mr. PHILLIPS. How do you pump?

Mr. CLINTON. We pump out of the original Bluff Canal, the existing Bluff Canal. There is a second relift on the service canal for the Bluff area.

Mr. PHILLIPS. I had a note I got from somewhere that you are pumping as if they were 2 separate pumping units of approximately 600 acres each.

Mr. CLINTON. That is about right, but one is the relift on top of the other.

Mr. PHILLIPS. You limit these to 160 acres?

Mr. CLINTON. Yes, sir.

Mr. PHILLIPS. That is a pretty small project for the United States of America. How can you justify the overhead? What will it cost on the Bluff part of it? Do you have that separated somewhere?

Mr. CLINTON. The Bluff is $609 an acre, and the Hanover is $414.

Mr. PHILLIPS. How did you allot your prices, your investigations, surveys, reports, design, construction, supervision and all the administrative costs for Bluff? Did you allot them on the basis of one-fifth of the project cost?

Mr. CLINTON. No, we allotted them on the basis of the actual cost of building the facilities from the joint works down to serve each of those areas; the Hanover area on one side of the river and the Bluff on the other.

Mr. PHILLIPS. Hanover is carrying part of the overhead cost of Bluff?

Mr. CLINTON. No, the overhead cost is split proportionately to the actual construction cost of the two of them.

Mr. PHILLIPS. What percentage of the $609 figure you gave me is covered by these items I was giving you?

Mr. CLINTON. I do not have that figure readily available.

Mr. PHILLIPS. Can you put it in the record?

Mr. CLINTON. I will.

(The matter referred to follows:)

The estimated Federal investment per acre for the Bluff area of the Hanover-Bluff unit of Missouri River Basin project is $609. Of this amount, 24.8 percent or $152 per acre is estimated to be required for investigations, surveys, reports, design, construction supervision, and all administrative costs properly assignable to the facilities being constructed.

Mr. PHILLIPS. I do not know that I have ever heard of as small a unit. In the area where I live that is a pretty small unit, 600 acres, for the United States to go into. Why did the farmers not build it for themselves, with only 600 acres? They can do it cheaper than you can.

Mr. CLINTON. The cost figures shown here are the reason why, Mr. Phillips, I think.

Mr. PHILLIPS. Then why did we think it was justified to go in and build a project of only 600 acres? I take it that this is another project which was already privately owned, and the farmers were on it?

Mr. CLINTON. No, sir; they are not. The land is privately owned, but there is no farming on it now. This is desert land above the Big Horn Valley up on a bench.

Mr. PHILLIPS. Why did we think it desirable with all the land in the United States upon which you could put water that we should go in and buy privately owned land for a double section, if you can call it that, an irrigation district of 600 acres in each section?

Mr. CLINTON. We do not buy the land, Mr. Phillips.

Mr. PHILLIPS. What do you do?

Mr. CLINTON. Where it is privately owned the ownership stays with the original owner.

Mr. PHILLIPS. You mean we did all this for one person?

Mr. CLINTON. You are taking that 600 acres out, Mr. Phillips. When we plan these projects you may have several of those small corners that you will put together to make a unit. I think you could look back at quite a few of the old projects, where a relift or pumping plant was put on the main canal that got pretty close to this.

Mr. PHILLIPS. You mean that that pumping system has an advantage to some other unit?

Mr. CLINTON. No, sir; it is combined with the rest of the unit.

Mr. PHILLIPS. I do not quite understand your point. Why do you say we find it advantageous to do this because it is a little corner cutoff somewhere? Why do we have to put it in?

Mr. CLINTON. Let me explain it this way: There are 1,200 acres on that bench above the Bluff Canal. It is good irrigable land and has not been developed previously, so we approached it to find the most economical way to get water on that land. It just happened two pumping plants was the most economical way to do it.

Mr. PHILLIPS. But I am trying to go back of that, Mr. Clinton, as to why we thought it desirable to put water on so small a piece as 1,200 acres, if it is owned by one person.

Mr. CLINTON. It is not owned by one person.

Mr. PHILLIPS. I understood you to say it was.

Mr. CLINTON. No, it is in private ownership, I said.

Mr. PHILLIPS. How many people?

Mr. CLINTON. The holdings will run around 100 to 250 acres per person. But they are dividing that out in accordance with reclamation law. The district has agreed to the excess lands provision.

Mr. PHILLIPS. I think it is a distinction without a great difference. What you have done is that you had originally 4 or 5 owners, and for that we are putting on how much money, on Bluff? What is the total cost of Bluff? I am not sure that is not a good name.

Mr. CLINTON. The total cost of Bluff unit is $759,000.

Mr. PHILLIPS. In other words, the United States Government is spending $759,000 plus the overhead costs of the Department, plus the interest the Treasury will pay to get the money, which are not calculated in the specific project, to benefit not over 5 people?

Mr. CLINTON. I do not see the difference, Mr. Phillips, whether it is 5 people or 100 people. We have other projects around the country where we run into the same cost to serve 100 people.

Mr. PHILLIPS. I think it makes a good deal of difference in the amount of time and the overhead. Are you recovering $759,000 plus all the other expenses plus the overhead plus the interest?

Mr. CLINTON. That was the reason, Mr. Phillips, that last year we combined the Hanover and Bluff units as a means of reducing that overhead and spreading it over a greater acreage. The first budget submittal only had the Hanover unit. We asked that Bluff be added. If it is ever going to be built it ought to be built by one construction organization. It was a means of spreading it over more than 600 acres, that you are talking about.

REPAYMENT

Mr. PHILLIPS. Would you like to answer my question I asked before? Are you recovering the entire cost of this project plus all the overhead plus the costs in the Department of Interior plus interest?

Mr. CLINTON. Everything except interest. It is recovered two ways.

Mr. PHILLIPS. How much is the interest?

Mr. CLINTON. No, it does not include the interest.

Mr. PHILLIPS. Then you have interest which amounts to how much? Is this 50 years?

Mr. CLINTON. The irrigation contract is for 40 years plus a 10-year development period.

Mr. PHILLIPS. Fifty years that the United States has to go out and borrow money, at an average of 2½ percent, and the lowest we can possibly get it is about $750,000. Does somebody want to figure how much that is for me? It is 2½ percent for 50 years on $759,000.

That is an interesting statement, Mr. Clinton, because on page 354 of your justifications it looks to me as if you are showing—what is the MRBP?

Mr. CLINTON. Missouri River Basin project.

Mr. PHILLIPS. It looks to me, according to that, as if you were donating $582,700 from the revenues which have nothing whatever to do with this project. That looks to me like a donation.

Mr. CLINTON. It is a donation on the part of the power users in the Missouri River Basin to this unit. That is what it amounts to.

Mr. PHILLIPS. In other words, the users in the Missouri River Basin are giving $582,700, plus how much in interest?—plus the overhead that is involved and all the inspections. It is about a half million dollars in interest. Presuming that you gentlemen down at the Interior Building can do this in your spare time you have $1.1 million that the people of the Missouri Valley are donating to 5 people up in this project. Does that seem unusual to you?

Mr. CLINTON. It is the same donation that they are going to make on larger projects if they are built. It is the same contribution per person or per water user which will be made on much larger projects.

Mr. PHILLIPS. You do not make any distinction between 4 or 5 private owners on this property and a very large number of people who cover a very large area of ground, which brings a whole area of a State into the economic picture?

Mr. CLINTON. Yes, I think we do, Mr. Phillips. To be frank with you, I think there is a lower cutoff point in the size of a project which we should not build.

Mr. PHILLIPS. Where is the cutoff point, below five?

Mr. CLINTON. There is a small projects bill. I think that contemplates what we are talking about in these sizes of projects, that is, whether they should be part of the regular reclamation program, or some other program?

Mr. PHILLIPS. I am very much in favor of that bill, because it allows the people to do the work themselves without involving all of the overhead you have applied against this particular project.

Do you not think it would have been cheaper to give each of these 5 people $100,000 and ask them to move some place else?

Mr. CLINTON. That is something for the Congress to consider.

Mr. PHILLIPS. You would have saved a half million dollars there.

Mr. CLINTON. That is something, I think, for the Congress to consider; that there is a logical cutoff point where you could do something like that.

AUTHORIZATION

Mr. PHILLIPS. I suspect your point is well taken. I presume this was authorized specifically?

Mr. CLINTON. It was handled the same as all other Missouri Basin units. It was brought to the Appropriations Committee last year.

Mr. PHILLIPS. Was this project authorized?

Mr. CLINTON. It was authorized in 1944 as a part of the overall Missouri Basin project.

Mr. PHILLIPS. I am beginning to discover the formula here. Did you bring to any legislative committee the specific information which I am not acquiring this afternoon?

Mr. CLINTON. No, sir; we did not, Mr. Phillips. We brought it to the Appropriations Committee only. I testified on this one before both the House and Senate Appropriations Committees last year the same as I am doing today.

STATUS OF PROJECT

Mr. PHILLIPS. This was planned in 1942 and advance planning was made. That is an intriguing word, "advance planning," coming some 11 years after the planning.

We started construction in 1955. We have not started it yet, have we?

Mr. CLINTON. We just started it.

Mr. PHILLIPS. How much do you have invested in it now? How much do you think we have in it? Suppose we canceled this project. How much would we be stuck for?

Mr. CLINTON. I think it would cost something to cancel the construction contract just let.

Mr. PHILLIPS. Surely; it would. How much?

Mr. CLINTON. I cannot give you a figure offhand on it.

Mr. PHILLIPS. Could we not buy off these five people and save a half million dollars?

Mr. CLINTON. Well, if the Congress wants to do it I guess they could.

Mr. PHILLIPS. I think your point is well taken. I do not think we have a right to lay this at your door, except that you might have been a little more specific in what it was going to cost us and what it means.

Mr. CLINTON. I was specific last year, Mr. Phillips, to both Appropriations Committees. The same figures shown here were given to the Appropriations Committees last year. Whether we are right or wrong in not going to the legislative committees I do not know, but that is the way the Missouri Basin project was developed, long before I came to it a year ago.

Mr. RILEY. Mr. Clinton, when did you first get money to start construction?

Mr. CLINTON. Last year was the first year.

Mr. RILEY. In the 83d Congress?

Mr. CLINTON. Yes, sir.

Mr. RILEY. Up to that time only a very negligible amount had been spent in planning; is that right?

Mr. CLINTON. Just the planning cost was all. We had the planning work done by the time the appropriation hearings last year were held, to the point where we were about ready to start construction.

HEART BUTTE UNIT, NORTH DAKOTA

Mr. RILEY. The next unit is the Heart Butte unit. Without objection we will insert in the record the project data and pages 364 and 365 of the justifications.

(The matter referred to follows:)

Missouri River Basin project, Heart Butte unit

Date of planning: 1903.
Date of advance planning: 1946.
Date of authorization: Flood Control Act of Dec. 22, 1944.
Original cost estimate: $2,497,280.
Date of reauthorization: None.
Estimated cost of start of construction: $4,283,000.
Present cost estimate: $6,405,000.
Date construction started: 1947.
Estimated date of functional completion: Fiscal year 1959.

Remarks: Increase in estimated cost from $2,497,280 to $6,405,000 due to—

General price level changes: $2,795,932.
Changes in project plans: —$277,730.
Structural and engineering modifications: —$247,220.
Unforeseen conditions: $17,987.
Inadequacy of estimate: $27,811.
Other: $1,590,940.

MISSOURI RIVER BASIN PROJECT HEART BUTTE UNIT, NORTH DAKOTA

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$6,253,000
Total obligations to June 30, 1954	3,877,779
Allotment, fiscal year 1955	300,000
Prior year balance available	26,000
Total obligations, fiscal year 1955	326,000
Allotment, fiscal year 1956	200,000
Balance available in subsequent years	−105,000
Total obligations, fiscal year 1956	95,000
Balance to complete	1,954,221

Work proposed, fiscal year 1956

Heart Butte Dam and Reservoir.—Completed in prior years.

Pumping plants and laterals, western portion—Initial development ($85,906).—Construction will be completed in the first 4 or 5 months of the fiscal year under contracts expected to be awarded early in February 1955. Delivery of the pumps and other equipment is anticipated by the end of fiscal year 1955. These facilities will furnish water to the 2,537 acres in the Western Heart River Irrigation District, with initial water to be available in the spring of 1956.

Pumping plants and laterals, western portion—Deferred development.—Deferred pending reorganization of the district and completion of repayment negotiations.

Pumping plants, canals, and laterals, eastern portion.—All activity on this item deferred until future years, dependent on development of need.

Pumping plants and laterals, central portion.—All activity on this item deferred until future years, dependent on development of need.

Drains ($3,000).—Construction of drains required for the initial development of the western portion will be completed.

Development farm.—Completed and in operation.

Distribution lines and substations ($73,000).—Contracts to be awarded in February 1955 for payment to Mor-Gran-Sou Electric Cooperative for Bureau portion of joint facilities and for equipment and construction of facilities, to provide power for irrigating the acreage in the Western Heart River Irrigation District, will be completed in the first half of the fiscal year. Specifications will be issued and construction started on facilities, later in the year, to serve the rest of the acreage in the western third of Heart Butte unit if the status of district reorganization and repayment negotiations justifies this action.

General property ($15,000).—The work of establishing trees and shrubs in the wildlife habitat areas at Heart Butte Reservoir will be continued. Acquisition of service equipment for operation and maintenance of completed irrigation facilities is provided for.

TOTAL COST ESTIMATE

Mr. RILEY. I note here that there is a slight increase in the estimated cost over the testimony of last year, going from $6,223,400 to $6,322,600.

Mr. CLINTON. Yes, sir.

Mr. RILEY. Could you give us some reason for that, in view of the fact that several of these other contracts have shown a decrease in estimated cost?

Mr. CLINTON. The reason is stated in the justifications, Mr. Chairman. I will repeat it and also give the explanation.

The increase was due to adding the cost of the distribution powerlines that were necessary to get the Government power from our nearest transmission substation out to these pumps. It was due to a change in policy by the Department of Interior that the cost of

those distribution lines should be included as part of the cost of the irrigation project instead of being charged up to the transmission system.

Mr. RILEY. When was that determination made?

Mr. CLINTON. That was last summer.

PORTABLE PUMPING PLANTS

Mr. RILEY. I read here where there is some slight decrease in the cost, from the use of portable type pumping plants. What is the life of these pumps? Is that an economical way to handle this situation over a long pull?

Mr. CLINTON. Mr. Chairman, this is another one of the small projects we were just talking about. It is getting down below the realm of our standard design.

Generally when we put a pumping plant on a river we build a permanent foundation for it and build a concrete or some other kind of building over it. We attach discharge lines to it to carry the water up to the canal, and that plant and all the equipment stays in the river from then on.

When we came to one this size we felt it was not justified to put in a permanent installation and build a concrete foundation on the bank of the Missouri River to put in a small pumping plant, and that it was cheaper to buy portable pumps.

The practice established has been in use for quite awhile in that area. It was much cheaper to just buy the pumping plant and provide skids to slide it down to the water's edge in the spring of the year and then at the end of the irrigation season take it back from the river so that it would not be damaged by ice or floodwaters the following spring.

There is a sizable reduction in the cost by doing it that way.

FEASIBILITY

Mr. RILEY. Apparently some of the landowners adjacent to this project or in this unit have furnished their own pumps. Is it feasible to have them all furnish their pumps and so save the Government an investment in these portable pumps?

Mr. CLINTON. On this stream we have both kinds of situations. We have the Dickinson Reservoir built on the stream, and we are selling water to some landowners who installed their own pumps. This was a unit laid out several years ago as part of the Pick-Sloan plan. The local people have wanted it built for several years, and it was finally brought about last year. It was one of the new starts brought before the Appropriations Committee last year.

Where they build their own works we just sell the storage water. In this case we are building the distribution works as well as delivering the storage water.

This is down in the category of small projects; the kind Mr. Phillips was talking about a moment ago.

Mr. PHILLIPS. If that bill is going through, why do you have to build it?

Mr. CLINTON. I did not understand your question, Mr. Phillips.

Mr. PHILLIPS. I will ask it later.

Mr. RILEY. Was construction money not obtained on this prior to last year?

Mr. CLINTON. Just planning money only.

Mr. DOMINY. Well, the dam was built.

Mr. CLINTON. Yes, the reservoir was built. Money was obtained several years ago and the reservoir was constructed, but on this particular distribution system for this unit, last year was the first year construction money was appropriated.

Mr. RILEY. Will this system be amortized within the 50-year limit?

Mr. CLINTON. Not by the water users. We have a repayment contract with them that will run for 50 years, but they will not pay the entire cost. The rest of it will have to be paid by the Missouri River Basin power revenues.

Mr. RILEY. If the Government did not buy these portable pumps, Mr. Clinton, would the landowners adjacent to the project not furnish their own pumps, and would that not relieve the Government of some of the obligation it is undertaking?

Mr. CLINTON. Mr. Chairman, in areas where there were lower lifts or an easier means of building the canal, they have taken on their own pumping, where the cost was less than this. We do not have any cases of where they have gone up to an investment this high and provided the money themselves.

Mr. RILEY. Does it create any dissatisfaction among the landowners in this area, for some of them to furnish their own pumps and for others to have the benefit of Government-owned pumps?

Mr. CLINTON. I have not heard of any dissatisfaction.

Mr. RILEY. Does it make any difference in the cost of water?

Mr. CLINTON. No. For the storage water we charge them both the same at the river.

Mr. RILEY. How do you amortize the cost of the Government pumps? Does that go into construction cost?

Mr. CLINTON. Yes, that goes into construction cost. A part of it is covered by the repayment contract with the water users.

Mr. RILEY. Mr. Phillips.

Mr. PHILLIPS. I think, Mr. Clinton, there is a marked difference in the answer to the Chairman's question. This way it is interest-free.

Mr. CLINTON. Yes, that is correct.

Mr. PHILLIPS. I think you ought to say that to the chairman. Why should the landowners object to it? He would have to go out and use his own money, or he would have to go out and borrow money to do this and he would have to pay interest. The Government comes in and pays for the interest, and for a long period of years.

Mr. CLINTON. That is correct, Mr. Phillips. Because he has to pay interest also limits how much he can spend on pumping equipment.

Mr. PHILLIPS. I have been doing a little calculating. It seems to me this is a rather unique project. I do not know many other projects in my experience where we have gone out and bought individual pumps for individual landowners. Do you?

Mr. CLINTON. No, it is unique. It is the only one I know of. It is the first one I think the Bureau has built of this kind.

SMALL PROJECTS BILL

Mr. PHILLIPS. There was a question I asked you. I did not mean to interrupt the chairman a moment ago. You said that this was the kind of project which would be subject to this new, small-projects bill, I gathered. I just said that if you agree with me that that is a very good bill, and we both think it is going through, which it appears it will, why does the Government go to all of the expense of putting $6,405,000 on this project, which could be taken care of under that bill?

Mr. CLINTON. The small projects bill, of course, had not been passed last year when this came before the Appropriations Committee.

Mr. PHILLIPS. Have you any objection to waiting?

Mr. CLINTON. The work is already under way. We would have to stop it now.

COST PER ACRE

Mr. PHILLIPS. I divide $6,405,000 by 2,537, which is the number of acres, and I get the astounding figure, if I have my decimal point in the right place, of $2,562 an acre.

Mr. CLINTON. You are including the cost of the Heart Butte Dam in that; are you not?

Mr. PHILLIPS. Do I not have to?

Mr. CLINTON. Yes, you do. But the Heart Butte Dam was originally planned to serve 13,000 acres. This is the first part.

Mr. PHILLIPS. What happened to the other 10,000?

FORMATION OF IRRIGATION DISTRICT

Mr. CLINTON. They have not formed a district yet.

Mr. PHILLIPS. Are they going to?

Mr. CLINTON. We do not know how long it will be before they form a district.

Mr. PHILLIPS. Have they actually taken steps which would indicate to you that they are not going to, or have they expressed themselves that they are not?

Mr. CLINTON. I do not think they have said one way or the other. We have left it to their own initiative to volunteer on their part whether they want to form a district or not. We have taken the position we will not build any irrigation distribution works until they do form a district.

Mr. PHILLIPS. I think that might be checked on, Mr. Chairman, because the information I have is that the people objected to it and did not come in. Is that right?

Mr. DOMINY. As a matter of fact, as our printed justification here indicates, there was a district at one time that covered the full 13,000 acres, but before the repayment contract was approved a good part of that land withdrew from the original district. The original district was then disbanded and the smaller one was formed. There are still many people in that larger area who think they would like to have irrigation.

Mr. PHILLIPS. Mr. Chairman, I am just reading from the Bureau's own testimony before this subcommittee this year:

Opposition to irrigation developed, however, and court actions followed.

Mr. CLINTON. That is correct, on the original district.

Mr. PHILLIPS. Then you really have no hope at the present time—or a very remote hope—that you are going to get more than 2,537 acres?

Mr. CLINTON. Mr. Phillips, this unit is in North Dakota in an area where irrigation is just getting started. There is a reluctance on the part of these people to change over from their past dry-farming habits. Some will and some will not. It will take time.

Mr. PHILLIPS. Would the reporter please read Mr. Clinton's testimony, where I quote him as saying, "I know of no resistance."

Mr. CLINTON. I said at the present time I know of no resistance in this district.

Mr. PHILLIPS. I probably am quite dense. I do not quite see, if your testimony says that opposition developed and court actions followed, and you say that 10,000 acres withdrew and would not go along with you, why you can say that there is no opposition at the present time.

Mr. CLINTON. Maybe I stated that in error. I meant on the present district of 2,500 acres.

Mr. PHILLIPS. You mean after 10,000 acres left you then there were 2,537 acres left and they did not object. But when you say the court action followed, did you not have to take some of these 2,537 to court to keep them in the district?

Mr. CLINTON. Maybe I had better repeat the whole history, to get it straight, Mr. Phillips. I think it is stated in the justifications.

The original district was formed including the whole 13,000 acres. The landowners in that original district objected to the repayment contract and the district was disbanded. Then a little over a year ago this smaller district was formed in the upper reaches of the valley known as the Western Third. That was the district we proposed to construct the works for.

Mr. PHILLIPS. And you did have to keep some of them in, apparently by court action.

Mr. CLINTON. No, sir.

Mr. PHILLIPS. What is the court action? Is that to get out? The 10,000 took court action to get out?

You are testifying that all of the 2,537 acres stayed in voluntarily?

Mr. CLINTON. No. The original district was disbanded and the 2,500 acres formed a new district.

Mr. PHILLIPS. All of them voluntarily?

Mr. CLINTON. Yes, all of them voluntarily.

Mr. PHILLIPS. Well, I am in doubt, Mr. Chairman—and that is why I am conducting this rather extensive line of questioning—as to how the Bureau can justify participation in an area of 2,537 acres at an average cost per acre of $2,562, when you have to put in 30 pumps, which is something never done before in my experience, and which means you are pumping water on average ownerships of less than 100 acres.

Mr. CLINTON. I think it is a good question. The question was raised, I believe, many times before and it was presented to the Appropriations Committees last year. It is a project that the local people wanted.

AUTHORIZATION

Mr. PHILLIPS. I will ask you the same question I asked you about the other project. As I say, I am beginning to sense the formula I must follow.

When you testify that this is justified sometimes you use a document number. Is that not the general document that justifies the whole Missouri Basin?

Mr. CLINTON. Yes, sir.

Mr. PHILLIPS. And that did not begin to spell out any of the projects indivudually, did it?

Mr. CLINTON. It named them and gave a little brief information about them.

Mr. PHILLIPS. It just said, "We are going to have a project at Heart Butte," or something like that?

Mr. CLINTON. That is correct.

Mr. PHILLIPS. That is hardly what you and I would call a justification? Do you want to answer that "Yes" or "No"?

Mr. CLINTON. I would agree with you on it.

Mr. PHILLIPS. On the second question, did you actually at any time even before this committee last year spell out in detail what I am asking you now; that this project was going to cost $2,562 per acre, that it was for the benefit of some 30 landowners or whatever they would be, who have tracts of less than 100 acres each, that this was a precedent and this had never been done before, that we are going to buy pumps for individual farms, which from time immemorial has been the custom of the individual farmers, and that we were going to do that and spread the cost over 50 years without charging them any interest? Did you tell them that?

Mr. CLINTON. All the same figures as now presented were given to the committee last year. I do not recall how much was explained or how much questioning there was on it.

Mr. PHILLIPS. Did you explain to the committee last year very carefully that these 100 people or less were going to be subsidized to the extent of three-fourths of the cost of this?

Mr. CLINTON. Yes, I think the figures spoke for themselves.

Mr. PHILLIPS. "The figures spoke for themselves." That is not exactly the same thing I asked. Would you say you made it clear to the committee what the figures were saying? Maybe the figures did not speak very loudly. You were supposed to be sitting over there speaking for them.

Mr. CLINTON. I am trying to think back over a year ago and trying to remember what was said. I think there was a pretty full discussion of it, Mr. Phillips. I would have to read the record myself.

OPERATIONS AND OVERHEAD COSTS

Mr. PHILLIPS. Do you know if the cost you are charging up against the water users includes the cost of operating these pumps, or do they take it from the time you put it on the line?

Mr. CLINTON. They take over the cost of operation and maintenance.

Mr. PHILLIPS. Do you know what percentage the $2,562 covers of the overhead cost, Bureau investigation, engineering, and all the

administrative and overhead costs I mentioned? Does it cover all of that?

Mr. CLINTON. It is supposed to cover all of those.

Mr. PHILLIPS. What percentage of it do you suppose covers it?

Mr. CLINTON. I will give you a rough guess. On the unit this small it will probably run 30 percent.

Mr. PHILLIPS. I think that is pretty rough. I think it is very conservative, do you not, on a project of this size? I am fairly familiar with the cost of overhead on projects, and I think that is pretty low, unless you do better in North Dakota than you do in some of the other States with which I am more familiar.

Let me get this clear about the Missouri River. What is the scale on this map I have here; do you know, Mr. Dominy?

Mr. DOMINY. No; I do not.

Mr. PHILLIPS. Here it is; 6 miles. The Missouri River is about 30 miles away from the nearest pump. Just what do you mean by dragging this pump up to the edge of the Missouri River?

Mr. CLINTON. I said up on the riverbank. That is the bank of the Heart River, not the Missouri River.

Mr. PHILLIPS. Then you had better change your testimony, because the testimony will show you said the Missouri.

Mr. CLINTON. I am sorry; I meant from the Heart River.

Mr. PHILLIPS. I think the chairman will let you change it.

Mr. RILEY. Yes; that will be all right.

NUMBER OF PUMPS

Mr. PHILLIPS. Did you look at this map, Mr. Chairman, that I am looking at, which shows all these pumps stuck along here?

Mr. RILEY. Yes.

Mr. PHILLIPS. There are supposed to be 30, are there not? That is interesting.

Does that suggest a question as to how many pumps you actually contemplate putting in? You say, I think, there will be 20 or more, in the justifications.

Apparently in the justifications it did not give any number. Let me ask a question: How many pumps do you contemplate buying and giving these farmers, or installing upon the land of these farmers in the Heart Butte unit?

Mr. CLINTON. Within this district there are 26 pumps. I have not counted the spots on this map.

Mr. PHILLIPS. You have 29 on there.

Mr. DOMINY. I count 30 on the map.

Mr. PHILLIPS. I did not count those round red spots.

Mr. DOMINY. Do the 26 pumps include the relift pumps involved in this?

Mr. CLINTON. No. It would include just the main river pumping plants.

Mr. PHILLIPS. How many more pumps are there that you have not included?

Mr. CLINTON. Apparently the other three are relifts. I did not include the relifts.

Mr. PHILLIPS. You say "apparently." Does anybody know? Do you stand on 29?

Mr. NIELSEN. I do count 30, Mr. Phillips.

Mr. PHILLIPS. Did you count the red spot right there by "laterals"?

Mr. NIELSEN. I counted the squares, not the circles.

Mr. PHILLIPS. I guess I left out that red square where the arrow points from the word "laterals." That would make 30. That is not important.

Mr. NIELSEN. I think we had better make certain you realize as more lands come in, there will be more pumps. This is for the present district. There are still 10,000 acres there which may or may not come in.

Mr. PHILLIPS. You mean there are really about 30 owners there at the present time. You are assuming that some more of the people that have resisted coming in are going to come in later?

Mr. NIELSEN. I did not want the testimony to stop dead and say that 30 would be all, because we cannot foreclose all the rest of those people.

Mr. PHILLIPS. Apparently at the present time you do not have much assurance that they are coming in.

Mr. NIELSEN. No. I just did not want the testimony to say they would not.

Mr. PHILLIPS. Are you working on them?

Mr. CLINTON. No, we have not. We have decided if they want to form a district voluntarily they can.

Mr. PHILLIPS. You certainly are not anticipating raising the subsidy any or anything like that, are you? You already have $2,562 per acre on the land.

Mr. CLINTON. You will have about the same rate of subsidy per acre for the rest of the lands downstream, Mr. Phillips, that you have on this unit.

Mr. PHILLIPS. I ask my question again, which probably sounds a little foolish: Do you not think it would have been cheaper for you to have handed each of those people $1,000 or more per acre and told them to relocate themselves? We would have saved $1,500 per acre on the deal. Your answer is that is not for you to decide?

Mr. CLINTON. That is right. I think you have a good point, though.

Mr. RILEY. This particular construction appropriation for this project was made last year?

Mr. CLINTON. Yes, sir; the initial construction appropriation was made last year. Mr. Chairman, may I correct that? That was, again, for this irrigation unit, not Heart Butte Dam.

Mr. RILEY. Yes.

MONDAY, MAY 2, 1955.

REPROGRAMING OF 1956 FUNDS

Mr. RILEY. The committee will come to order.

We will continue consideration of the request for funds for fiscal 1956 for the Missouri River Basin project.

This morning we have a letter from Fred G. Aandahl, Assistant Secretary of the Interior, which reprograms the moneys for four of the units in the Missouri Basin project.

It reduces the request for the Lower Marias unit in Montana by $2,825,000, increases the request for the Glendo unit in Wyoming by $2,120,000, increases the request for the Hanover-Bluff unit in Wyoming by $290,000, and increases the Missouri River Basin project investigations by $415,000.

Without objection, we will insert the letter into the record.

(The matter referred to follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., April 29, 1955.

Hon. CLARENCE CANNON,
United States House of Representatives,
Washington, D. C.

MY DEAR MR. CANNON: There is submitted for your consideration proposed reprograming of funds included in the budget for fiscal year 1956 for the appropriation "Construction and rehabilitation, Bureau of Reclamation."

The program adjustments are confined to work to be performed in fiscal year 1956 in the Missouri River Basin project as follows:

Lower Marias unit, Montana		—$2,825,000
Glendo unit, Wyoming	$2,120,000	
Hanover-Bluff unit, Wyoming	290,000	
Missouri River Basin project investigations	415,000	
		2,825,000

The reduction of $2,825,000 on the lower Marias unit represents a decision to defer construction of irrigation facilities and the development farm presently included in the budget estimate pending acceptance of a repayment contract by the irrigation district to be served. A petition authorizing the irrigation district board to execute the repayment contract has been in circulation since November 1954. There is no immediate prospect that a sufficient number of landowners will sign the petition authorizing the repayment contract. Accordingly, the construction of the irrigation facilities must be postponed.

Construction of the Glendo Dam and powerplant was started in 1955 with funds in the amount of $1 million provided in the Supplemental Appropriation Act, 1955. Our letter of April 29, 1955, requested your approval of a proposal to program an additional $800,000 in fiscal year 1955 from savings on other projects which would allow for payment of earnings scheduled by the prime contractor in the construction of the dam. The additional amount of $2,120,000 proposed herein for fiscal year 1956 would allow for construction of the dam, powerplant, and appurtenant works at a rate which will make project benefits available a year earlier than presently scheduled. This will reduce costs through reduction of additional years of overhead charges.

The increase of $290,000 for the Hanover-Bluff unit would allow for increased payments under a construction contract for pumping plants now in effect. It would allow the contractor to proceed at a more efficient rate and complete his operations in fiscal year 1956. It will also allow for an earlier award of contracts for the construction of canals and laterals in both the Hanover and Bluff areas.

The increase of $415,000 for Missouri River Basin project investigations is needed for concentrating and expanding the investigation program for new irrigation in North and South Dakota and parts of Montana.

These adjustments in the 1956 program in the Missouri River Basin project have been discussed with the Bureau of the Budget. We have been formally advised that there would be no objection to their submission to the Committees on Appropriations of the Congress.

Representatives of the Bureau of Reclamation will be prepared to justify these adjustments in detail at the time of hearings on the 1956 budget estimates.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

Mr. RILEY. Mr. Dexheimer, could you give us just a little background as to why these changes were made?

LOWER MARIAS UNIT

Mr. DEXHEIMER. Yes, sir. The lower Marias unit in Montana is the area which is proposed to be irrigated from the Tiber Dam, which is now nearing completion. The last few years have been quite good so far as the dryland wheat in that area is concerned, and the people who were proposing to form the irrigation district to repay the cost of the irrigation system have now, just in the last week or so, indicated that they are not ready to sign a repayment contract, so we feel we could not use the $2,825,000 until they indicate a greater interest in irrigation. We would like to reprogram that amount to other features in the Missouri Basin where we badly need the money to go ahead with an orderly program of construction.

GLENDO UNIT

In the case of the Glendo unit, which we have under contract, we have not been able to provide sufficient funds to allow the contractor to carry on an orderly schedule of work.

He has indicated that he can complete that unit if he has sufficient funds, approximately a year ahead of the scheduled completion.

If he should complete it within that time, a year ahead, it would result in very substantial savings in the cost of construction and in the cost of our supervision of that construction. It would also make the benefits available for the irrigators and the power users a year in advance, and substantially increase the revenues to the United States.

TRANSFER OF FUNDS BETWEEN PROJECTS

Mr. RILEY. Mr. Dexheimer, the appropriations for the Missouri River Basin project are made in lump sums, as I understand it, and then you recommend certain allocations which are justified before this committee, but so far as the appropriation is concerned, it is a lump-sum appropriation for the entire project. Is that correct?

Mr. DEXHEIMER. No, sir. That is true for the investigation and the operation and maintenance work, but the construction items are limited usually by the report of the committee to definite figures for each unit in the Missouri Basin.

Mr. CROSTHWAIT. The amount is appropriated as a lump sum, however.

Mr. DEXHEIMER. Yes.

Mr. RILEY. Appropriated as a lump sum, but you justify the various units and then we confirm them. But you would not feel free to transfer any funds from one unit to the other without the consent of the committee?

Mr. DEXHEIMER. That is correct. We feel that the committee has approved the overall appropriation on the basis of each one of these items we have justified, and similarly the Bureau of the Budget. They have approved it on that basis, and we feel it would not be fair to the Congress, and we might get ourselves in difficulty, if we transferred those funds without clearance of the Bureau of the Budget and the Appropriations Committee. That is why we are making this request for clearance in this case for 1955 funds, and the changes in 1956.

LOWER MARIAS UNIT

Mr. RILEY. The lower Marias unit in Montana you just told us that the folks up there are so well satisfied with present conditions they have been a little slow in organizing their irrigation district.

Do you think there is a possibility that they will want to continue that way for some years, or what is the situation with regard to the future so far as you can tell?

Mr. DEXHEIMER. Back in the thirties, during the droughts, at the time when there were no price supports on wheat, the people were very anxious to have irrigation in that area, and that was the reason for our planning for providing an irrigation project for them.

I expect that any time either one of those conditions change, if they have 1 or 2 dry years, or if the price supports are taken off of wheat, we will have them back clamoring for irrigation and they will want it the day before yesterday, which we will be unable to do.

Mr. RILEY. And you feel that you will save money in the Glendo unit by increasing the tempo of the construction work there?

Mr. DEXHEIMER. I am sure that we will; yes, sir.

AMENDMENT TO ORIGINAL BUDGET REQUEST

Mr. PHILLIPS. I am not entirely clear. I thought you were going to another subject, Mr. Chairman, and didn't mean to interrupt you earlier.

Mr. Dexheimer, you want to use $2,800,000 of the money appropriated for lower Marias and put it as indicated on Glendo, Hanover Bluff, and Missouri River Basin investigations.

We have had some difficulty in the last few days in attaching to the projects any legislative authorization for building them or for their increases.

Does this mean that lower Marias is permanently reduced $2.8 million or that you are merely borrowing the money?

Mr. DEXHEIMER. No, sir. We have that appropriation request before the committee now, but since that was sent in we have found that the irrigators are not going ahead this fiscal year with their organization of the irrigation district.

Mr. PHILLIPS. May I interrupt a second? You say before the committee. You mean this committee or the legislative committee?

Mr. DEXHEIMER. Before this committee, before it makes appropriations for fiscal 1956.

Mr. PHILLIPS. In other words, this is an amount of money requested for lower Marias in the present budget request?

Mr. DEXHEIMER. Yes, sir.

Mr. PHILLIPS. You want to take that money which has not yet been granted you and use it for these three other units?

Mr. DEXHEIMER. Yes, sir.

Mr. PHILLIPS. Wouldn't it be much more straightforward to just come in and modify the request and say that you need that much additional for Glendo, Hanover Bluff, and not act as if it were a transfer from what is in effect a nonexistent amount of money?

Mr. DEXHEIMER. Well, it is a request, the overall amount of which we are not exceeding for fiscal 1956 appropriations.

If the Congress sees fit to change that amount, either up or down, from the overall budget request, of course, then this might be changed, too.

But we are asking that, because of this late information which we have now that we did not have when the printed budget went to the Congress, that this shift be made in the utilization of those funds.

Mr. PHILLIPS. I see what you mean. It maintains the present figure of the budget without change, but I think it is unfortunately worded. It should be simply a request to remove that amount from the budget and to add to it and not show it as merely a transfer from one appropriation to another, which it is not.

I didn't read the letter carefully. Perhaps I should look at it.

(Discussion held off the record.)

GLENDO UNIT

Mr. PHILLIPS. I would like to raise a question which has to do with the Glendo project, Mr. Chairman, while these people are here, if I may.

My recollection of the testimony was, and I think the transcript is not yet back from the reporters' office, is that the better cost of Glendo was the result of better contracting.

Am I right on that, Mr. Crosthwait?

Mr. DEXHEIMER. Yes. The bids we received for the major construction contract were lower than our original estimates.

Mr. PHILLIPS. But still much higher than the original estimate of Glendo, as I recall it, and I am still getting this from memory, I think your original estimate of how much it would cost was much lower than the contemplated final cost, and the point I was making the other day in the committee is that there appears to have been no subsequent reauthorization for it.

But that was not the point I now make. I had some of this material checked, some of the statements checked, over the weekend. I am sorry to say that I find portions of the testimony do not conform to the facts. That is why I am bringing it up here today, to see if you can explain them or if you want to correct the testimony.

I should say that I am personally allergic to being given what are supposed to be facts or statements which do not add up correctly when I check them myself.

For example, the present estimate for Glendo was given as $44,300,000. I think you will agree with that.

Now, then, you have said again today that the bids for the construction of portions of the Glendo project were favorable, and that enabled you to reduce the amount to $44,300,000 from the previous amount. All right.

I find you gave the figure of $44 million on August 18, 1954, and the bids were opened on November 9, 1954, which is 3 months afterward. So how could you say that it was good bidding which made it possible for you to reduce the estimate? The bids had not been opened.

Mr. DEXHEIMER. I think an explanation of this whole thing perhaps is in order. Apparently there is a misunderstanding about these authorizations and the original estimates.

The original Missouri Basin Project Act, in 1944, was based on what we might term "windshield estimates." In many of the projects which were authorized in that act we did not even know where they were located. We had no basis for a good estimate at all.

I think that was thoroughly understood at the time, as we did not have any definite plans worked out for many of the units in the Missouri Basin project at that time.

Therefore all of the estimates in the Missouri Basin on those indefinite projects you will find have changed materially, not only those of the Bureau of Reclamation but those of the Corps of Engineers, and their program, of course, is even much greater than ours.

Mr. PHILLIPS. Yes.

Mr. DEXHEIMER. And even though those estimates might have been based on some factual information in 1944, we all know prices have doubled on those units. The plans have had to be changed as we dig into the projects and find out what the actual project should consist of.

Mr. PHILLIPS. Mr. Dexheimer, I don't think there is anything unreasonable about that situation at all. It is a common situation with any project of such magnitude, where you make an estimate, conditions change, labor costs change, prices change on material, and everything else.

But the question before the subcommittee, which I think should be before the subcommittee, is whether a project which is estimated at $4 million, and then some years later is estimated at $44 million, is justifiable on that basis of cost, or whether that should be taken back to a legislative committee to get authorization.

My contention would be that these projects have not been properly taken before a legislative committee for authorization, and having been criticized on the floor of the Congress for any attempt to take action in an Appropriation Committee without legislative authorization, I think what is good for one is good for all.

That is not what I am asking about today. I am asking about the statement that the reduction in Glendo is due to good bids.

The amount which you estimated, and I recall it is all in the record since I asked the questions myself, the amount given is $50,859,000, then raised to $52,476,000.

Then before this committee it was testified that it had been reduced as of August 18, 1954, and the figures given were $44 million.

The statement was made very definitely on the record that that was due to good contracting. But the bids were not opened until 3 months after you gave the figure. You either have a good crystal ball or else your statement was not accurate.

Am I right?

Mr. DEXHEIMER. No, sir; you are not. I think you will find that this unit was reauthorized on the basis of the new figure last year before the legislative committee.

The Glendo unit has been reauthorized on the basis of this new estimate, and you will find on our page 346, under "Status," that the total estimated cost of the Glendo unit has been decreased from $50,859,000 to $44,300,000.

Mr. PHILLIPS. That is all right.

Mr. DEXHEIMER. This decrease has come about by using more accurate field data and specification quantities. That is one of the things we find in our review of these estimates, and in order not to be too optimistic originally we had our costs a little higher.

When we got our engineering data and specifications we were able to reduce the overall estimate to $44,300,000.

Mr. PHILLIPS. Mr. Dexheimer, I don't think you understand me.

Mr. DEXHEIMER. I think I do, sir.

Mr. PHILLIPS. I am accepting your figure of $44,300,000, and I have read it on page 346.

But the point is that you published that figure on August 18, 1954, and it is the same figure.

Then you came before us and said the reason you were able to reduce it, which I thought was commendable, was because you had had some much better contracting. I thought that was especially commendable.

Now I find that the bids were not opened until 3 months after the figures were published.

Now, then, the reason given for that was, and I asked this specifically the other day in the questioning, if the revised estimates resulted in part from transferring or deleting portions of the project as included in the $52 million estimate. The answer on the record will show it to be "No."

Now I find, in breaking down these individual items over the weekend, that $1 million of the reduction is due to the transfer of part of the cost of Glendo switchyard to the Transmission Division.

I thought you might want to correct your record, but you want to argue it with me.

Mr. DEXHEIMER. I just want to point out the overall history, sir, of the changes which were made and the legislative authorization that we have.

Part of our reduction in cost, which may eventually bring it below the $44 million, I don't know, is due to favorable bids which we received on the main contract. Part of it is due to other items.

Mr. PHILLIPS. But you have not explained how you knew they were so favorable 90 days before you opened them.

Mr. DEXHEIMER. We did not know that, of course.

Mr. PHILLIPS. But you published the figure 90 days before you opened the bids.

Mr. DEXHEIMER. We didn't publish a figure on the prime contract for the overall construction of the dam, but we do anticipate, because of those favorable bids, that the overall price will be somewhat decreased.

Mr. PHILLIPS. That was your estimate on August 18, 1954?

Mr. DEXHEIMER. I don't know to what estimate you refer.

Mr. PHILLIPS. The $44,300,000 estimate.

Then also, as I say, we find now that $1 million of that is not due to contracting but transferring part of the switchyard cost over to the transmission system.

Mr. DEXHEIMER. Yes, sir. You will not find in the $44,300,000 our estimate of savings on the prime contract on which we did not open bids until 3 months later, as you point out.

Mr. PHILLIPS. That is right.

Mr. DEXHEIMER. This change in cost was due, as I pointed out, to more accurate field data and specification quantities, and our ability to estimate a little closer.

In addition to that, after we opened the bids, we found that our engineer's estimate was a little higher than the low bids we received, so it might be possible in the long run to make some additional savings.

Mr. PHILLIPS. Mr. Chairman, I have no desire to exhaust more time on this subject.

I am pointing out to the gentlemen across the table that the testimoney as it appears in the record, and which will be printed if they do not change it, is not accurate.

If they are not interested in it, all right.

It is not accurate on two points.

Mr. DEXHEIMER. I would like to correct the record, if the record shows that this $44,300,000 was due to favorable bids on the construction contract, certainly that is not the case.

Mr. PHILLIPS. It shows that, Mr. Dexheimer.

Mr. DEXHEIMER. I would like to correct that on the record if I may.

Mr. PHILLIPS. And it also shows it was due to contracting, and it also shows specifically, with the answer "No" to my question, that none of it was due to transferring any part, deleting any portion or transferring any portion of the project.

Investigation of it shows distinctly you transferred $1 million from one section to anther.

Mr. DEXHEIMER. Yes, sir.

Mr. PHILLIPS. I don't want you to put me in a position where I cannot have confidence in the statements you make.

Mr. DEXHEIMER. No, sir. I am sorry that I did not personally know about that statement and I would like very much to correct both of those on the record.

Naturally we could not anticipate what we were going to have for a low bid, and our estimates could not have been corrected on that basis alone.

If there is a question of transferring some of the work, that also should be corrected as well as this overall estimate.

As I point out, our favorable bid openings after our estimate was made, might result in further reduction of the overall cost of the project.

So with the committee's permission we would like to change that on the record.

Mr. RILEY. Without objection that may be done.

Mr. Dexheimer, I am looking at the transcript of the public laws affecting the Interior Department. It seems that a planning report was submitted in February of 1954 to the Secretary of the Interior, and this report was submitted by him to Congress on the 2d of April 1954, and I presume to the Public Works Committee, the Appropriations Committee.

On the basis of that a joint resolution was passed by the House and Senate authorizing this work.

Is that your recollection of this project?

Mr. DEXHEIMER. Yes, sir. I think that is the reauthorization on the basis of the new estimate last year.

Mr. RILEY. That is in Public Law 503 of the 83d Congress. It was approved last year for this Glendo project.

I understand there is a possibility that you may be able to reduce the estimated cost of $44,300,000 still further if the bids continue to be favorable?

Mr. DEXHEIMER. Yes, sir; there is that possibility.

Mr. RILEY. Then we will go on to the project that we were considering when we adjourned on Friday.

HELENA VALLEY UNIT, MONTANA

We will take up the Helena Valley unit in Montana.

Without objection we will insert the project data and pages 372 and 373 in the record.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, HELENA VALLEY UNIT

Date of planning: 1933.
Date of advance planning: 1952.
Date of authorization: Flood Control Act of December 22, 1944.
Original cost estimate (1944): $1,896,000.
Date of reauthorization: None.
Present cost estimate: $11,989,000.
Date construction started: 1955.
Estimated date of functional completion: Fiscal year 1959.
Remarks: Increase in estimated cost from $1,896,000 to $11,989,000 due to—

General price level changes	$3,728,000
Changes in project plans	5,327,000
Inadequacy of estimate	1,136,000
Other	−98,000

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$11,962,287
Total obligations to June 30, 1954		273,287
Allotment, fiscal year 1955	$250,000	
Total obligations, fiscal year 1955		250,000
Allotment, fiscal year 1956	$3,000,000	
Total obligations, fiscal year 1956		3,000,000
Balance to complete		8,439,000

Work proposed, fiscal year 1956

Helena Valley Dam and regulating reservoir ($160,000).—A contract will be awarded in the third quarter for construction of the feature. Land and land rights will be acquired.

Helena Valley pumping plant ($945,600).—Construction of the pumping plant will be initiated early in the year. Funds are also required for payments to material suppliers for contracts already in effect and to be awarded.

Helena Valley tunnel, canals, and monolithic concrete siphons ($1,848,000).—Construction will be continued under the contract for construction of the tunnel. Design data will be completed and a contract awarded for the reach of canal leading from the tunnel to the regulating reservoir and for the concrete sphons. Design data will be completed for the remainder of the main canal for which construction is scheduled to start in fiscal year 1957.

Lateral system ($14,000).—Collection of design data will be continued. Construction of laterals associated with the first block of land to be irrigated is scheduled for fiscal year 1957.

Drainage system ($20,000).—Collection of design data will be continued through the year with completion and initiation of construction scheduled for fiscal year 1957.

General property (camp and equipment).—No construction is scheduled until fiscal year 1958.

General property (recreational facilities).—All activity on this item deferred until future years.

REPAYMENT CONTRACT

Mr. RILEY. Has the repayment contract on this project been executed?

Mr. CLINTON. No, sir; it has not, Mr. Chairman.

Mr. RILEY. Will you go ahead with these projects, whether or not the repayment contract was executed?

Mr. CLINTON. No, sir, Mr. Chairman, not where we are building distribution facilities, until at least we have an election by the water users. In this case we will wait until the contract has been executed and confirmed by the court.

Mr. RILEY. There have been no construction contracts awarded, then?

Mr. CLINTON. No, sir; there have not.

Mr. DEXHEIMER. Mr. Chairman, if I may—in general, the law does not say we shall wait until the contract is executed. It states we cannot deliver water until a contract is executed.

But we find that, particularly where there seems to be some question, it is much more advisable for us to negotiate and have a contract assured as near as possible before we go ahead with any major construction.

We are trying to do that as a matter of policy. That is the reason why we withdrew our request for the Lower Marias, changing these items.

Mr. RILEY. I for one would approve of that project. I would think that otherwise you would have the appearance, at least, of forcing something on these people which they had not confirmed by their own action. That is how it would seem to me.

Mr. DEXHEIMER. We feel they should go that far and assure us of the repayment contract, although sometimes we do not actually wait for the signing of the contract because it is a long, drawn-out procedure in many States for them to get it confirmed by the court. But we have to be reasonably assured that it will be executed.

Mr. CLINTON. I would like to explain further on this case: In the case of this particular unit, this was one of the new starts for which money was appropriated by the committees last year. There were $250,000 appropriated for the Helena Valley unit last year for preconstruction work, with the provision that no actual construction work would be started until an irrigation district had been formed and a contract executed.

So for that reason, we will definitely not start this one until we have a repayment contract confirmed by the court.

Mr. RILEY. Do you have any information which would indicate when, if ever, this contract will be signed?

Mr. CLINTON. Yes, sir.

Mr. RILEY. Is there some litigation with regard to it?

Mr. CLINTON. No, sir. The local people have been working diligently at it. During the past year they have had two steps to get through. The first was to form an irrigation district.

That requires, under Montana law, circulation of petitions among all of the affected landowners who are going to be included in the district. They have to sign petitions asking that their land be included in the district.

Those petitions have been circulated during the past winter and spring, and the total number that have been signed now exceed the number required under Montana law; that is, that at least 60 percent of the landowners sign petitions requesting the district, and that those landowners hold at least 60 percent of the land in the district.

Those required number of petitions now have been signed and have been turned over to the court, and the court action to establish the district has been scheduled for May 23, about 3 weeks from now.

The next step after the district is formed, will be for the Bureau to proceed to negotiate a contract with the board of commissioners of that district, and we are anticipating that that step can be completed by August of this year.

When that is done it will permit us to start construction either late August or early September of this year.

Mr. RILEY. Do you have any data showing the number of acres and the number of landowners involved?

Mr. CLINTON. I have the number of acres, Mr. Chairman. It is 17,631 total.

Of that there will be 13,000 that will receive a full supply of water.

COST ALLOCATIONS

Mr. RILEY. I note here that the irrigators are scheduled to repay $1,544,000 and the other $10,439,000 of the estimated cost is to be amortized through the power generated?

Mr. CLINTON. That is correct, sir.

Mr. RILEY. Is that power all up and down the Missouri River Basin or is it assigned to any particular project?

Mr. CLINTON. The power system is operated as an entire unit, sir. All of the generating plants are tied together by a transmission grid, and the entire revenues from that power system are pooled.

Mr. RILEY. Have we had testimony as to cost of power in the Missouri River Basin?

Mr. CLINTON. Assistant Secretary Aandahl covered that in his opening statement the first day of the hearing, sir.

Mr. RILEY. I was wondering how much these various projects increase the power generated.

Mr. CLINTON. As I recall it you requested the Secretary to provide that information for the record.

MISSOURI RIVER PROJECT PAYOUT

Mr. DAVIS. How do you handle this dumping of additional obligations on your proposed revenue from power?

For instance, in this case out of something like $719 an acre, with $89 to be repaid, the explanation given last year is that you would have to pick up the balance of it from power, and there is no power in this project. So it has to be taken from somewhere else.

What assurance can we have that when you add an additional power burden on some of these projects already built that you are not making it impossible for them to pay out in the manner that you told us they would at the time those projects were justified?

Mr. PHILLIPS. Where is $719?

Mr. DAVIS. In the hearings of last year.

Mr. PHILLIPS. This year it is apparently $680.

Mr. DAVIS. They have brought it down in their estimates somewhat, then, since last year. I was referring to the justification for this project in the supplemental last year.

Mr. PHILLIPS. To be paid by the water users, the amount is still $88.

Mr. CLINTON. That question has been asked so many times in recent years I think that is the reason why the Department of the Interior is making the overall review of the Missouri Basin project which Assistant Secretary Aandahl discussed the other day.

It is in process now. I believe that when that is completed and is available for the use of the Bureau of the Budget and the Congress it will answer the question that you are asking.

The old economic analysis of 1953 is out of date, and for that reason this current review and a more critical review is being made.

Mr. DEXHEIMER. I might more fully answer that to clarify it. We have the overall Missouri River Basin project, which includes many large dams and powerplants built by the Corps of Engineers and other works built by them, and many projects built by the Bureau of Reclamation. These are all coordinated in a study wherein costs are allocated, and the potential projects in the Missouri Basin, which might reasonably be built in the next 20 or 25 years, are being reevaluated. In this study we then dropped out those that we feel now, for one reason or another, will probably not be built within the foreseeable future. We have taken those projects, with a little better estimate of cost, and allocated the cost to power, irrigation, flood control and other items, and have restudied the whole thing. On the basis of our preliminary study, using a reasonable estimate for the proposed units and all presently authorized or constructed units, it looks as though we can come up with a showing that the overall Missouri Basin project is still financially feasible without any change at the present time in the cost of power to the consumers.

Of course if it should show that at some future time the overall costs of going ahead with this development would not pay out within the time proposed to the Congress, then it might be necessary either to drop off some of the more costly units, or to slightly increase the rate for the sale of power, either one of which could result in continued financial stability. That is quite similar to what we have done in other places, notably in the Central Valley project in California, which is financed in very much the same manner.

Mr. DAVIS. Well for some of these big ones on the main stem, their cost-to-benefit ratio is already pretty thin. We are talking in terms of 1 to 2 and things of that kind, and now here comes along a project in a supplemental, late in one session, and coming in with a substantial request for money in the next session. The pay out for irrigation is going to be some 11 or 12 percent, somewhere along that line, and the rest of it is to be made up from power. I ask from what power? There is no power here. How often can we keep doing that without absorbing all the ratio of benefits in the big stem projects where it is 1 to 2 which is pretty thin.

Mr. DEXHEIMER. That is why we are making a reanalysis of the projected projects for the future, to see just how far we can go and still maintain the same power rates.

You will understand of course, that a large percentage of the Missouri Basin project is for flood control and navigation. None of that money is repaid at all and the people partcipating, if any, only participate to the point of providing rights-of-way in some cases. As a national policy, flood control and navigation have been entirely interest free and without any repayment. The irrigation features, of

course, under the same policy and law are required to pay to the extent of their ability to repay, which we try to anticipate in the basic economic studies and negotiate contracts for such repayment.

So that while we are spending some money in the Missouri Basin for irrigation, at the same time there is 2 or 3 times that amount each year being spent for these other things which are noninterest bearing, and nonreimbursable, for that seems to be the policy and has been the policy of the Government for over 50 years.

Mr. DAVIS. Can you find much wrong with the thinking of this committee if it were to say in cases of this kind where the project is just getting started and we have not too much to lose that "We would be pretty smart to wait until this study has been completed before we commit large sums for a project of this kind?"

Mr. DEXHEIMER. No, sir. The analysis which has been before the committee for the past few years shows these additions are entirely justified on the basis of the analysis up to date and, so far as we can tell, it will be some 20 years in the future before we are in danger of having difficulty, either, by having to raise the power rates. It may not be quite that long in the case of the power rates, because of the higher power cost nowadays, when you are developing power itself. But the overall pay-out I think is adequately safe for any combinations we are proposing now or will propose for some years in the future.

Mr. DAVIS. I am not quite sure I follow you on that. It seems to me in order to justify using public funds for a project where you have certain things you seek to accomplish, in order to counterbalance the expenditure, you have to be able to point to certain assets you are going to have as a result of that expenditure. Here it shows that only a very small percentage in the way of recouping is going to come from irrigation; the rest of it is going to come from power. Yet this asset, at least so far as the work this committee has been doing in the years I have been on it, is used up; we have all of those assets used up, because we have taken them all into consideration when we have gone ahead with the big projects on the river from which that power is to come. We have said "This is something we are going to get in terms of power revenue that will give us a favorable benefit-cost ratio to justify you, or us, in providing funds to go ahead with them." Then you come over here with a project like this and want to take credit for some revenue that, so far as this committee is concerned, has already been committed.

Mr. DEXHEIMER. I think perhaps I can clear that up. In 1953 a cost study of the overall Missouri Basin project was made for the benefit of the committee. The power features on these projects are required to be repaid, with the power cost as a first call on the revenues. It is only revenues over and above power costs that we can use as an assistance to other features, including irrigation. So that power revenues are available to the extent our studies have been made on these projects, and for quite a number of projects that we may propose for the future for repayment, plus what the irrigators repay, to pay out within the schedule we have presented.

Mr. DAVIS. You cannot tell us what particular power revenues you are going to have available as an offset on this Helena Valley unit, can you?

Mr. DEXHEIMER. They are pooled in the whole Missouri Basin, you understand; not only the main stem power projects which are the larger ones that the corps builds, and we market the power from those, but the others which we may build we will also get from those power revenues to help pay out. It is only by pooling all of the power for sale, as a matter of fact, that it makes it possible to repay the overall costs.

For example, on one of the large dams you can generate a certain amount of power, but you could not sell as firm power that part that is generated only during the time of peak floods. It would be available only, perhaps, for a month or two of the year, so that you combine that with the other power output from other dams and then have a firm power output, say, for 24 hours a day and all year around that you can sell it for a higher price than you would with just short-term power output. Additional short-term power output is sold to companies or cooperatives that have steam generation with which to firm it up. This is using what we call dump power. Then, of course, there are certain advantages of hydroelectric power where you can use it for the peaking power output. Rather than to turn on and off the higher cost steam power generators 2 or 3 times during the 24 hours, they can use the hydrogeneration to take care of the peaking power for 3 or 4 hours a day. And so the overall power output must be coordinated for proper utilization and also for the payout. With each unit that you add that generates power, of course you make a restudy of how you are going to coordinate that into the overall system; how much power you have available for sale, and then negotiate your power contracts on that basis.

Mr. DAVIS. The difficulty I have with this and I would think the same difficulty would apply to you people, is in attempting to determine whether any specific irrigation project is worthy of the expenditure of public funds. As it stands now, if you have what you can consider to be a surplus in terms of power revenues in the whole big area of the Missouri Basin, you can pick out any spot on that map and say "Well, we will put an irrigation project in here. Here is some land which will raise something if you put some water on it and it will be of more value than it is without the water. If it won't pay off very much, we have this large pool in this whole area that we can use to subsidize it and go ahead with that." That, it seems to me, puts an agency like yours in a position to weld the whole power economy so far as the localities are concerned and certainly puts this committee at your complete mercy in trying to evaluate an individual project, because we have no way of following the sources from which that power revenue can come. All you need to tell us is "We have got it over in the Missouri Basin," period. And if irrigation only pays for 12 percent of the investment that is all right, because we have the power revenues to do it.

Mr. DEXHEIMER. That is a very complicated study and we are still putting in power units, still building those things that will come in in the future. We must anticipate not only when those will be in, but the price at which we can sell the power and how much we can sell and where it is going to be marketed. And, as I pointed out, the 1953 studies were made available to the committee. In our latest ones we are reevaluating the whole project. But until we get that study com-

pleted, we could not give you accurately the overall pay-out of the Missouri River Basin on this new allocation. But all of our studies show that we do have pay-out as proposed to the Congress on these features. And still we cannot tie it to any one of those main stem dams and say "We have so much surplus revenue from that particular one." In the first place, we do not have it from any particular one alone. All generation must be combined in order to get the best advantage from the power and the revenue available from that generation. Our latest studies indicate that there is sufficient revenue for paying out the power investment with interest and to carry on this additional program for a number of years to come.

Mr. DAVIS. How do you go about justifying an individual project like this before the Public Works Committee?

BENEFIT-COST RATIO

Mr. DEXHEIMER. This project, for example, has a benefit-cost ratio, I think, in itself of 1.4 to 1. And the justification for it is based on the need for that particular project and the repayment and willingness of the people locally to have such a project, and the overall revenues that are available from the Missouri Basin to pay the balance of the cost. It makes it, of course, a great deal more difficult for us than it does for any other agency of the Government, in that we must show not only a favorable benefit-cost ratio, but must show a repayment over a period of years authorized by the authorizing legislation.

Mr. DAVIS. What kind of a breakdown of that 1.4 to 1 can you give us? I am trying to figure out how you got that kind of a ratio for a project of this kind.

Mr. CLINTON. It is made up of both what are known as direct benefits and secondary benefits. I do not recall the exact split between direct and secondary, but it is a combination of both of them.

Mr. DAVIS. I did not get the last part of your statement.

Mr. CLINTON. It is a combination of both the direct and secondary benefits. The total of all annual benefits compared with the total Federal annual cost of the project gives us a ratio of 1.4 to 1.

Mr. DAVIS. I understand how the thing is computed mathematically, but what are your items in this instance? What is behind those computations?

Mr. CLINTON. The direct benefits are a measure of what the landowner or farmer actually gets from applying water to the land. The gross-crop return is one measure that is used to tell what the direct benefits are. The secondary benefits are the benefits that accrue to the community where that irrigation unit is built. They are measured by the increase in business in the area. They are the general overall benefits to that community.

Mr. PHILLIPS. Did the witness mean to say "gross," or "net"?

Mr. CLINTON. I meant to say "gross," as a measure of the direct benefit—the gross-crop return.

Mr. PHILLIPS. What becomes of the cost?

Mr. CLINTON. You stand all the costs against the gross income, Mr. Phillips.

Mr. DEXHEIMER. Your benefit-cost ratio then becomes really the net.

Mr. DAVIS. In a project of this kind, for instance, in order to arrive at that favorable figure, what portion of your benefits are you attributing to this surplus from the Missouri Basin project, roughly?

Mr. CLINTON. None.

Mr. DAVIS. None at all?

Mr. CLINTON. None at all. Those are irrigation benefits we use in evaluating this unit.

Mr. DEXHEIMER. It would be nice if we could evaluate as benefit the cost of power for pumping and farm use; but that is one of the things we are not permitted to take into account. Neither are we permitted to take into account the national benefits and the enhancement of the national economy because of the project development. And those are very material.

Mr. DAVIS. I wish you would dig a little deeper into this question of arriving at that benefit-cost ratio for me. I have gone through it on these Corps of Engineers projects, but I am completely at a loss here.

You have given me several general statements as to what you use; but do you have backup figures for this specific project?

Mr. CLINTON. Yes; we do. I think it might be well if we would supply for the record actually how we arrived at the figure on this one, and the explanation. It would take me quite a while to go through it even if I had the figures all in front of me.

Mr. DEXHEIMER. Generally, I think we might say, though, we evaluate the projects in the area now without the water and the type of crop, and the value of the crop with the water, and the fact it can be a sustained crop year after year, which has quite a bit of influence on the stability of the economy in that area, as well as its contribution to the national economy. And those direct benefits are computed on the difference that the supplying of irrigation water would make on those particular acres to be irrigated. And in the case of differences between the additional water and the water they now have available, the type of crop, and the value of those crops, and the production that each individual, for example, could expect to get. And I think you will find our estimates of those things are quite reasonable. In fact, we try to be conservative. And a great many of those things, of course, are checked by the Department of Agriculture and other means for evaluating the crop return and the cost.

Mr. DAVIS. These figures you expect to give us on the backup for the benefit-cost ratio will be in sufficient detail to show the estimated returns from the increased crop production, what the crops are that you expect to get, and the basis?

Mr. CLINTON. Yes, sir.

Mr. RILEY. Without objection, we will incorporate that in the record.

(The matter referred to follows:)

Benefit-cost ratio of Helena Valley unit, Missouri River Basin project

Project costs	$11,989,000
Irrigation	11,983,000
Recreation	6,000
Adjusted total cost including irrigation storage	12,320,000
Interest during construction	619,000
Public investment, including interest during construction	12,939,000
Annual equivalent cost	353,400
Annual assigned operation, maintenance, and replacement	65,200
Total annual cost	418,600
Total annual benefits	589,200
Benefit-cost ratio, 1.4.	
Benefits	589,200
Irrigation	567,000
Direct	251,000
Indirect	316,000
Fish and wildlife	20,500
Recreation	1,700
Annual operation, maintenance, and replacement	65,200
Irrigation	64,700
Recreation	500

Helena Valley unit, Missouri River Basin project, annual irrigation benefits

		Adjusted for development period and rounded
Direct:		
Family living	$138,920	
Payment capacity	101,326	
Accumulation of equity	23,989	
Total	264,235	$251,000
Indirect:		
To local distributors	252	
To processors	67,765	
To suppliers	79,783	
Total	147,800	141,000
Public:		
Settlement opportunities	100,000	
Investment opportunities	35,984	
Community facilities	20,603	
Stabilization of economy	26,424	
Total	183,011	175,000
Total benefits		567,000

DERIVATION OF PUBLIC BENEFITS

Public benefits arise as a consequence of increase of improvements in settlement and investment opportunities, community facilities and from the stabilization of the economy. They are not included in other evaluations of benefits.

Settlement opportunities are assumed to approximate a beneficial value of $1,000 for each new farm. Investment opportunity benefits are claimed on the basis that each project offers added opportunities for local investments. A rate of 1.5 percent on the increase in farm investment is calculated as the benefit.

The 1.5 percent rate is the difference between the alternative of investing in Government bonds at 2.5 percent or making a farm investment at 4 percent. Reclamation projects throughout the West generally have better community facilities than the surrounding dry-land areas. The increased real and personal property taxes from farm budgets are taken to represent that portion of improved community facilities and services which are attributable to irrigation development. In certain areas the full benefit of preventing decline of the existing economy, or of mitigating extreme fluctuations in economic conditions is not adequately reflected in the calculation of direct and indirect benefits. The contributions of reclamation toward stabilization of the economy of the area is assumed to be adequately reflected by an amount representing 10 percent of direct farm benefits.

Mr. PHILLIPS. Continuing the line of questioning of Mr. Davis, in any of these estimates and analyses, does the Bureau ever take into consideration the relative merits of different proposed projects with the assumption there is a limited amount of money that can be spent by a nation that is running in the red year after year and, therefore, that a benefit should be very clear on project A as compared to project B which might be a much more feasible one. Do you ever take that into consideration?

Mr. DEXHEIMER. Yes, sir; we do. We take that into consideration in our investigations. We try to investigate these projects with a very cursory examination originally and the determination is made many times that a project could not properly be justified, and we try to stop our work at that point and not go ahead and spend money investigating and planning it, if it will not in fact show a good benefit.

GLENDO UNIT

Mr. PHILLIPS. Mr. Dexheimer, you were not over here Friday afternoon when we discussed some of these projects. I do not want to reopen the discussion but, for example, in the Glendo project about which I spoke this morning, the cost has risen, as I recall, from an estimate of about $4 million up to $52 million, and then dropped back to $44 million. I was reading from a photostatic copy I have here of the Budget Bureau's report on the Glendo unit, Wyoming, and I asked then that the last paragraph be put in the record, because that was the one to which I was referring at that time. But I have a feeling, if it is possible for the clerk to do so, that it might be well to insert the entire letter at that place, instead of just the paragraph; because I have an increasing feeling that Glendo is not a feasible project from any analysis at all. And I think that has been pointed out. I think it will show a net annual loss if the proper annual cost figures are compared with the potential revenues. I have a page number here of BR–348 that I think will so show it with the rates now received in the area and the rates shown on that page. And I think we should have now some more definite assurance from the Bureau that proper repayment can be obtained before we appropriate any additional funds.

I say this now because I would like to make a formal request that this entire letter be put in the hearing in place of just the paragraph I quoted from it; and second, that perhaps the Bureau, in view of the situation, would like to make a reanalysis of it and submit it to this committee before we mark up the bill.

(The letter referred to follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., May 28, 1954.

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: This will acknowledge your letter of April 2, 1954, transmitting copies of the report of the Department of the Interior on the Glendo unit, Wyoming, Missouri River Basin project. This report was prepared in response to the provision contained in the Interior Department Appropriation Act for fiscal year 1954 which provided that no funds may be used for the construction of this project until a definite plan report had been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.

The Glendo unit, authorized by the Flood Control Act of 1944, consisted of a 150,000 acre-feet reservoir near Glendo, Wyo., for silt storage, reregulation of return flows on the Kendrick project when irrigated, and development of power. No powerplant installations were proposed so the increased power expected evidently was to be derived through better flow regulation. Construction costs were estimated at $4 million.

In lieu of the presently authorized works the Department's report now proposes an expanded project consisting of an 800,000 acre-feet reservoir with a powerplant of 24,000 kilowatts, and an additional powerplant of 48,000 kilowatts at Fremont Canyon. An average 269,400,000 kilowatt-hours of firm power and 13,900,000 kilowatt-hours of salable secondary energy would be delivered annually into the transmission system.

The estimated construction cost on the basis of November 1953 prices is $50,859,000. Costs are tentatively allocated as follows: to power, $38,532,000; to irrigation, $3,152,000; to flood control, $7,666,000; and to fish and wildlife, $1,509,000. Costs allocated to flood control and fish and wildlife would be nonreimbursable. The benefit-cost ratio is stated to be 1.4 to 1.0. The Commissioner of Reclamation states that before construction of the project is initiated, further consideration will be given to allocation of project costs and the allocation revised, as may be necessary, to reflect cost allocation procedures that may be agreed upon by all agencies in the executive branch.

In the payout study the cost allocation to power was increased to $40,529,000 based on the use of the alternative justifiable expenditure method and this amount plus $2,250,000 for interest during construction would be amortized in 50 years with interest at 2½ percent with average rates of 6.7 mills per kilowatt-hour for firm energy and 3 mills for secondary energy. It is anticipated that $1,125,000 of the $3,152,000 irrigation allocation could be repaid over a 50-year period and that the balance could be repaid by raising the firm power rate to 6.9 mills per kilowatt-hour or by extending the power payments for 2 years. No transmission costs were included in the estimated project costs or the amount to be repaid, although later information furnished by the Department increased the construction costs by $309,000 to provide for two short 115-kilovolt lines between the Fremont Canyon powerplant and the Alcova switchyard. Transmission costs assignable to Glendo are estimated in the regional director's report at $8,406,000 on the basis of basinwide requirements.

The Commissioner states that power from an alternative fuel plant providing comparable amounts of energy is estimated to cost 7.4 mills per kilowatt-hour for firm energy under Federal financing and more under private financing where higher interest rates, taxes, and dividends are invloved. Also he states that firm power is being sold at the present time by the Department in the Glendo area under interim contracts at average rates of approximately 7 mills per kilowatt-hour.

The Federal Power Commission has advised us that alternative electric power values would be approximately 7.6 mills and 5.3 mills per kilowatt-hour from privately and federally financed steam electric plants, respectively, for an average annual output comparable to the Glendo unit.

Later information furnished by the Department showed that an average rate of 6.95 mills per kilowatt-hour would be required to amortize with interest the power investment (including $309,000 for transmission facilitites) and to meet annual operation, maintenance, and replacement costs. No surplus would be available to apply against the irirgation investment during this period. This rate requirement, which does not include the cost of transmission of power to load centers, is larger than the average rate received during calendar year 1953 for firm power revenues from users in the Glendo area which, according to

information furnished by the Department, was 6.75 mills per kilowatt-hour. Furthermore, if the share of transmission costs set forth in the regional director's report were included in the estimates of power costs, an increase in rate of something over 20 percent would be required for payout.

Comments by the States of Nebraska, Wyoming, and Colorado, indicate that there is agreement among these States with respect to the construction of the Glendo unit, set forth in the definite plan report. We understand that the official views of interested agencies have not been obtained with respect to the revised report.

The Bureau of the Budget believes that the power investment in a Federal multipurpose project should be repaid with interest over a 50-year period, as outlined in the power policy statement developed by the Department of the Interior. We also believe that irrigation costs should be repaid in not more than 50 years.

Because of the marginal showing indicated by the ability of present power rates in this area to meet annual costs estimated by the Department financial feasibility of the Glendo unit does not appear to be demonstrated. We realize that under basinwide planning for development of the Nation's resources it will be expected that some projects will cost more than others to produce a given power output. However, until it is shown that a surplus exists or will exist which would support additional projects, we believe that initiation of the construction of the Glendo unit should be dependent upon the establishment of rates for power which would recover the full investment costs of the project allocated to power, including necessary transmission facilities, over a repayment period of not more than 50 years with an appropriate rate of interest in addition to operating, maintenance, replacement, and overhead costs. Because of these circumstances, the extensive expansion of the scope of the project over that authorized in existing law and the limitation in recent appropriation acts, the Congress may wish to reexamine the merits of the enlarged project before giving approval to proceed with construction.

As to the proposed allocation to fish and wildlife, the Bureau of the Budget believes that the costs for correcting damages to fish and wildlife resources caused by the building of projects should be treated as part of the construction costs and allocated to the various purposes in the same manner as other damages, including relocations. To the extent that the works to be provided are in the nature of an expansion of the fish and wildlife resources of the area they would fall into either of two classes. On those of a purely local nature the cost should, we believe, be fully reimbursed by States, local governments, or local interests. If the facilities are justified on the basis of a determination by the Secretary of the Interior that they are of national significance, the works should be authorized and financed as a part of the regular fish and wildlife program or authorizing language should be submitted to the Congress stating the maximum amount of such costs which would be borne by the Federal Government.

The cost allocated to flood control is based on capitalizing the benefits over a 100-year period. The net effect of this is to increase the allocation to flood control over the amount that would result if a 50-year project life were to be used in accordance with the standard practice of the Corps of Engineers. However, the amount to be finally allocated to flood control as well as the other allocations is expected to be reexamined, as indicated previously in this letter in the light of any cost allocation procedures that may be adopted by the executive branch.

Accordingly, the Bureau of the Budget would interpose no objection to the adoption by the Congress of the revised project recommended in the report of the Commissioner of Reclamation, provided that the authorization to proceed with construction specifically requires that rates for power and irrigation water be established to recover the full investment cost of the project allocated to reimbursable purposes over a period of not more than 50 years, with interest for all purposes except irrigation, in addition to normally expected operating, maintenance, replacement, and overhead costs. It is requested that a copy of this letter be submitted to the Congress for its consideration in connection with your report on this project.

Sincerely yours,

DONALD R. BELCHER, *Assistant Director.*

Mr. DEXHEIMER. The Budget Bureau, as you know, has concurred, and made a request that we start the Glendo unit last year, and I

do not feel they would have done that had they felt it was not financially feasible and the pay-out was not correct.

Congress has also reiterated by their resolution their feeling that the Glendo unit was satisfactory from every standpoint and has made appropriations for the construction thereof.

Mr. PHILLIPS. What I am saying is that both the statement and analysis to which you refer were made some time ago, and on the basis of figures right now before this committee there is a question raised as to the feasibility of the project, and I think you might want to ask for a reanalysis. In other words, do you want to ask the Bureau of the Budget, or shall I ask them, or this committee ask them?

Mr. DEXHEIMER. I do not feel that we would gain anything by the Bureau of the Budget reanalyzing the project.

Mr. PHILLIPS. We might not gain, but we might save a loss.

Mr. DEXHEIMER. You must realize that all of these units in the Missouri Basin are tied together in the overall financial pay-out and that we cannot just separate one of these individual units and say, "This unit alone is going to be entirely satisfactory."

MISSOURI BASIN PROJECT PAY-OUT

Mr. PHILLIPS. I do not know whether you entirely understand me. You want to establish and defend the status quo, and I say that the evidence shows here that the Bureau of the Budget was very doubtful and pointed out reasons for that doubt, and you assured them this would pay out on its own revenues. Now, from testimony before this committee this year it becomes very doubtful whether it will pay out on its own now, and you should want to make a reanalysis of it before you find yourself a few years from now in the very difficult situation of what is already happening on other projects. You are insisting in several cases on recalculating and writing a new contract with the water users who cannot possibly pay out on the original estimate. Do you want to invite that or make some effort to foresee it at the present time?

Mr. DEXHEIMER. I think we have made that effort and we have foreseen this and have reduced the cost on which our original estimate was based, so that it is even a little better than it was when the Bureau of the Budget analyzed it.

Mr. PHILLIPS. Will you turn to page BR–348 to the Glendo unit. Are you saying for the record that this is going to pay out on the basis of the power rates indicated on that page?

Mr. DEXHEIMER. I am saying it is a part of the Missouri River project and, as a part of it and combined with it, we have a pay-out.

Mr. PHILLIPS. Then, you see, that leads us to the line of questioning Mr. Davis was pursuing. Take page 369. Mr. Dexheimer, apparently last year, justified the Helena project. The figure given the subcommittee last year was $719 an acre. At the present time, and I say commendably every time I see a lower figure like that, it is $680, of which the water users are to pay back only $88. So then there is the balance of $592 an acre that comes from surplus Missouri River Basin projects, and there is an increasing demand.

No power, apparently, is being constructed in Helena and that means this load is added again to the load of the Missouri River Basin.

Am I correct in my assumption that you are now beginning to figure this on what we call, for want of a better name, the Collbran formula, that after the cost of construction of power has all been paid off then the water reclamation construction will be paid for out of those funds?

Mr. DEXHEIMER. It is not on the Collbran formula, but we are analyzing it on the basis that the power investment with interest will be paid out within the 50 years as a first call on those revenues, and the other revenues, over and above what it takes to pay the power investment with interest, are available for assistance on irrigation.

Mr. PHILLIPS. For 50 years?

Mr. DEXHEIMER. No, sir; not necessarily.

Mr. PHILLIPS. Inside of 50 years?

Mr. DEXHEIMER. In many cases some revenue would be available during that period of 50 years.

Mr. PHILLIPS. That is a qualified statement. If some revenues would be made available within the period, it means by translation that some are expected to be made available outside of the 50 years.

Mr. DEXHEIMER. The thing is this: It takes a certain amount of revenue to pay with interest the power investment in the 50-year period. Revenue over and above that is available for assistance to the irrigation features, and some of that revenue may very well be available during the 50-year period. The balance would then be paid out within a very short time after the power investment is paid out.

Mr. PHILLIPS. You testified in answer to Mr. Davis' question "What has been the policy for over 50 years" and, of course, first of all, 50 years ago we were assuming we were going to pay out a lot of those things in 10 years and then of necessity and because it was desirable we extended them until they got up to 50 years. And now, right today, you are saying you will have to use some revenue from power beyond 50 years in order to pay out the water benefits. We are way, way off on the original concept of the Reclamation Act.

Mr. DEXHEIMER. I pointed out the policy was to assist, without interest, through loan of Federal funds, irrigators to develop the irrigation facilities. The policy as to repayment has changed considerably over that period of 50 years and actually each one of those contracts which runs over 50 years has had the approval of the Congress.

Mr. PHILLIPS. Excuse me for interrupting you, but the question is raised as to whether the reporter got an answer to a question. I asked you if you would say for the record that this Glendo unit would actually pay itself out on the power revenues, with the power rates shown on page BR–348. I thought you said "Yes." Did you?

Mr. DEXHEIMER. No, sir; I did not. I said it would pay out as a part of the overall Missouri Basin project, the same as the other units of the Missouri Basin project.

Mr. PHILLIPS. Then I think I am in the same state of mind that Mr. Davis must have been in. You talk about "surplus," but where is the surplus going to be?

Mr. DEXHEIMER. In the overall Missouri Basin project from power revenues, largely—admittedly from the main stem, which are the power-producing units.

Mr. PHILLIPS. You know the old joke about the man who lost on every individual sale, but made up the loss on the volume of sales.

Do not you think that is what the Interior Department is figuring on in this one?

Mr. DEXHEIMER. No, sir; I do not. It is a combination of utilizing to the best advantage the resources you have available. The Bureau developed those projcts primarily for irrigation, domestic, and industrial water supply. Power is justified, generally speaking, on an overall system operation and any unit you add has to be justified within the total system. And we may very well have, as most public and private utilities have, some high-cost power-producing units and some lower cost power-producing units. They are combined and even though the cost of production by any one unit may be more than the sale price, you are justified in doing that in order to have that power available in your overall system.

Mr. PHILLIPS. That is all right if there are some that are paying out; but it appears so far that most of these have been at a loss that we have had presented so far this year. You see, it has already been testified that the power rates charged on those which I called your attention to are lower than those charged by private utilities in the area.

Mr. DEXHEIMER. That is correct. We only charge what we need to charge to pay back the investment plus assistance to irrigation.

Mr. PHILLIPS. Is not that a curious statement—you only charge what you need to charge. So you sell at a loss. What would you have to charge, say, at Glendo; what would you have to charge on those rates in order for it to pay itself out?

Mr. DEXHEIMER. We do not sell power from Glendo alone. We sell under a pool arrangement all of the Missouri Basin power and not any individual unit's power.

Mr. PHILLIPS. You mean you feed it into the entire grid and take it out of the grid?

Mr. DEXHEIMER. Yes, sir.

Mr. PHILLIPS. Or do you mean you cover your powerplant which distributes power to users in the Glendo area right there, but you sell at a loss merely as a bookkeeping arrangement which brings into the bookkeeping end the entire Missouri River Basin?

Mr. DEXHEIMER. We do not actually sell power at a loss in any case.

Mr. PHILLIPS. Wait a minute. Let us not get too confused over this. You testified you are not paying out on the power. You testified you are selling cheaper than the private utility thinks it can sell it, and then you say you are not selling at a loss.

Mr. DEXHEIMER. We are not selling power at a loss in the overall Missouri Basin System, and this Glendo unit is combined into that system and a rate is established for the eastern division and one for the western division of the Missouri Valley which will pay out the power investment with interest and will provide a very substantial surplus revenue for assistance of the irrigation. And at the present time and for some time in the future there will be sufficient revenues available over and above the pay-out of the power costs to assist in these irrigation projects and to make them entirely feasible from a financial standpoint.

Mr. PHILLIPS. Look; I have just written down four names that I can think of, and I will have to go back over the transcript. At Glendo, the estimated cost was $4 million; it is now $44 million. It

is selling its power at a price which makes it impossible for it to pay out for some construction. It is therefore in my book, no matter how you walk around the side, selling power at a loss, because it could not be otherwise except you say to consider it is part of the entire large area. It may be that is desirable.

Then we go to Bluff and in Bluff we are spending, if you include interest, more than $1.2 million and we are doing it for the benefit of 5 landowners, and doing it at a loss.

In Heart Mountain, we have about 30 landowners, and we are starting a precedent that has never been done before by the Bureau—at least I never heard of it being done—where we go out and buy pumps for individual landowners, and we have 30 landowners in that district who will benefit, and we are doing it at a loss. Certainly that cannot be justified either on the basis of individual benefit, or as part of a big picture to that extent. You can reason about it, but how in the world could you justify benefiting 5 individual landowners to the extent of $1.2 million? I suggested more or less humorously that you should have given each one of them—$1,000 and told them to move somewhere else. That would have saved several hundred thousand dollars.

HELENA VALLEY UNIT

REPAYMENT CONTRACT

Now, getting down to Helena, Mr. Clinton testified that you are going right ahead with a contract. I presume this is all settled land, and that people are on it, Mr. Clinton?

Mr. CLINTON. Yes.

Mr. PHILLIPS. Then, you are proposing to make contracts to start construction before you actually have repayment contracts?

Mr. CLINTON. No, sir, we do not, Mr. Phillips. I thought I said pretty clearly that we will not start any construction work on that unit until we have an executed and firm repayment contract from the district.

Mr. PHILLIPS. I think that is good. We had an exception to that the other day, but we apparently have only one exception to that policy.

Your estimate of the cost per acre was apparently based on a total acreage of 17,631, and, therefore, the cost laid against each individual acre, which is the unit with us, should be based on 17,631 acres. If you have half that many acres in use or irrigated, then the rest of them, the remaining ones, would pay twice the amount estimated.

If I understand you correctly, Mr. Clinton, on your own testimony you have not contracted for that many acres. You are figuring now on about 13,000.

Mr. DEXHEIMER. 13,000, and they will settle for the balance on a supplemental irrigation basis.

Mr. PHILLIPS. Then how many contracts do you have signed as of this moment, and for how many acres do you have them signed?

Mr. CLINTON. Last fall, Mr. Phillips, when we started out to deal with those people to form an irrigation district we contemplated that all of the lands, the 17,000, both new lands and the supplemental lands would be included in one district.

When they started to canvass the landowners to find out how many of them would be willing to come into the new district, the people on

the 4,600 acres of supplemental water lands decided that they did not want to come into the district along with the full lands. They preferred to deal with the Bureau separately for their supplemental water.

Mr. PHILLIPS. You have only 13,000 acres in the district?

Mr. CLINTON. Yes; we have 13,000 acres in the district being formed now.

Mr. PHILLIPS. Representatives of how many of those acres have actually signed their names to contracts?

Mr. CLINTON. Over 65 percent of them have signed their names on petitions.

Mr. PHILLIPS. I will give you 70 percent. In other words, you think you have 9,100 acres out of the total number right now?

Mr. CLINTON. No, sir.

Mr. PHILLIPS. Are those actual signatures on a contract, or just petitions saying that they would like to come in?

Mr. CLINTON. Those are signatures on petitions.

Mr. PHILLIPS. Has that petition the same legal value as a contract with you?

Mr. CLINTON. No, sir; it does not have, Mr. Phillips. That is why we are not awarding a construction contract.

Mr. PHILLIPS. How many actual signatures will you require on a contract with the Bureau before you start construction?

Mr. CLINTON. We are governed by Montana law. As I said, the Montana law requires that when they first form an irrigation district that 60 percent of the landowners and 60 percent of the land must be petitioned into a district, and after a district has been formed and it has been confirmed by the court, and then before the commissioners of that district are authorized to execute a contract they must circulate petitions among other landowners once more, and again the same landowners, at least 60 percent of them, have to sign petitions to authorize the commissioners to execute a contract.

Mr. PHILLIPS. And you have to have actually signatures representing 10,000 acres to get a legally enforceable agreement before you start construction?

Mr. CLINTON. We have to have 60 percent of this 13,000 acres.

Mr. PHILLIPS. I made it 60 percent of 17,000 because you said of the entire area.

Mr. DEXHEIMER. There are two areas involved, Mr. Phillips.

Mr. PHILLIPS. You have to have 9,000 acres, but you have estimated your cost per acre on the basis of 17,000 acres, so that it looks to me as if the farmer who goes in on this contract is going to get a little less benefit than you had originally calculated.

Mr. CLINTON. On the supplemental lands we can deal with them in two ways, Mr. Phillips. We can either sell them water under a section 9 (a) contract at a flat charge per acre, and to bring in the revenue we show on this document we would have to charge them at the rate of $3.85 an acre.

Mr. PHILLIPS. How much?

Mr. CLINTON. $3.85.

Mr. PHILLIPS. I would think that the land could certainly stand that. How much are you going to charge 9,000 acres?

Mr. CLINTON. Let me finish on the two ways of dealing with them, Mr. Phillips.

The other way is to sell them water on an acre-foot basis annually, and we have to charge them, to cover their share of the cost, $2.75 an acre-foot for water delivered out of the canal.

Mr. PHILLIPS. Somebody is picking up a piece of the check if you sell it to them for $2.75 an acre-foot.

Mr. CLINTON. That is figured on the basis of their repayment ability, the same as the fully supplied lands. We feel the supplemental lands should be able to pay just as much as the fully supplied lands for this kind of service, or $5.40 an acre.

Mr. PHILLIPS. I think they would resist the payment of $5.40. Do they not object to that when you talk to them about it?

Mr. CLINTON. They need water, Mr. Phillips.

Mr. PHILLIPS. What are they going to grow up there?

Mr. CLINTON. They grow alfalfa, grains, and some potatoes in there.

Mr. PHILLIPS. What are the people down below going to think when you put water on that land and they do not have it down below?

Mr. CLINTON. These supplemental supply lands are under existing ditches from Prickly Pear and Ten Mile Creeks. After paying this $3.85 per acre which would go to the Government for supplemental water, they still have to operate and maintain their own ditches. So, we are leaving $1.55 of their repayment ability to cover their own costs that they have been assuming in the past and that they will continue to assume in the future.

LEGAL BASIS OF COST ALLOCATION

Mr. DAVIS. What is the situation with respect to the law here that covers this situation in this Helena Valley unit, for instance, where there is going to be paid off something in the neighborhood of 12 percent by the water users, and 88 percent from the power revenues or electrical consumers in the basin?

Mr. DEXHEIMER. You say what is the legal basis for that?

Mr. DAVIS. Yes.

Mr. DEXHEIMER. It is covered by numerous reclamation acts, and particularly in the authorization for each project. The water users will be expected to repay to their ability and the balance may be repaid from other revenues.

In this particular instance, as Mr. Clinton has pointed out, last year the Appropriations Committee said that we should have a repayment contract before we spent construction funds on this unit, and we expect to do so.

Mr. DAVIS. Is there a general provision in the Reclamation Act which covers this situation, or is that something which has just grown up by usage through the authorization of specific projects on that basis?

Mr. DEXHEIMER. I think it is the 1939 act that specifically spells out the legal authority for doing it this way.

Mr. DAVIS. May we have that particular section put in the record? Will you pick that out for us and put it in the record?

Mr. CLINTON. Yes, sir, we will do that, Mr. Davis.

(The matter referred to follows:)

SEC. 9 (a) [No expenditures for construction until after investigation and report to President and Congress; if proposed construction found feasible by Secretary and repayable allocations equal estimated cost, construction may be authorized; if allocations do not equal cost construction may only be undertaken after provision by Congress.] No expenditures for the construction of any new project, new division of a project, or new supplemental works on a project shall be made, nor shall estimates be submitted therefor, by the Secretary until after he has made an investigation thereof and has submitted to the President and to the Congress his report and findings on—

(1) the engineering feasibility of the proposed construction;

(2) the estimated cost of the proposed construction;

(3) the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users;

(4) the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues;

(5) the part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States.

If the proposed construction is found by the Secretary to have engineering feasibility and if the repayable and returnable allocations to irrigation, power, and municipal water supply or other miscellaneous purposes found by the Secretary to be proper, together with any allcation to flood control or navigation made under subsection (b) of this section, equal the total estimated cost of construction as determined by the Secretary, then the new project, new division of a project, or supplemental works on a project, covered by his findings, shall be deemed authorized and may be undertaken by the Secretary. If all such allocations do not equal said total estimated cost, then said new project, new division, or new supplemental works may be undertaken by the Secretary only after provision therefor has been made by Act of Congress enacted after the Secretary has submitted to the President and the Congress the report and findings involved.

NOTE

Effect of filing and findings.—The Chairman of the House on May 14, 1941, ruled that a project is an authorized project under the provisions of section 9 of the Reclamation Project Act of 1939 when a report thereon under section 9 (a) has been transmitted as provided in that section, and that the initial appropriation for such project is not subject to a point of order (Congressional Record, p. 4138).

SEC. 9. (b). [Secretary may allocate part of cost to flood control or navigation; consult with Chief of Engineers; perform investigations under cooperative agreement with Secretary of War.] In connection with any new project, new division of a project, or supplemental works on a project there may be allocated to flood control or navigation the part of said total estimated cost which the Secretary may find to be proper. Items for any such allocations made in connection with projects which may be undertaken pursuant to subsection (a) of this section shall be included in the estimates of appropriations submitted by the Secretary for said projects, and funds for such portions of the projects shall not become available except as directly appropriated or allotted to the Department of the Interior. In connection with the making of such an allocation, the Secretary shall consult with the Chief of Engineers and the Secretary of War, and may perform any of the necessary investigations or studies under a cooperative agreement with the Secretary of War. In the event of such an allocation, the Secretary of the Interior shall operate the project for purposes of flood control or navigation, to the extent justified by said allocation therefor.

SEC. 9 (c). [Sales or leases of water or power; appropriate share of cost to be repaid in not to exceed forty years; preference to municipalities and other public corporations and agencies.] The Secretary is authorized to enter into contracts to furnish water for municipal water supply or miscellaneous purposes: *Provided*, That any such contract either (1) shall require repayment to the United States, over a period of not to exceed forty years from the year in which water is first delivered for the use of the contracting party, with interest not exceeding the rate of 3½ per centum per annum if the Secretary determines an interest

charge to be proper, of an appropriate share as determined by the Secretary of that part of the construction costs allocated by him to municipal water supply or other miscellaneous purposes; or (2) shall be for such periods, not to exceed forty years, and at such rates as in the Secretary's judgment will produce revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost and an appropriate share of such fixed charges as the Secretary deems proper, and shall require the payment of said rates each year in advance of delivery of water for said year. Any sale of electric power or lease of power privileges, made by the Secretary in connection with the operation of any project or division of a project, shall be for such periods, not to exceed forty years, and at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 per centum per annum, and such other fixed charges as the Secretary deems proper: *Provided further*, That in said sales or leases preference shall be given to municipalities and other public corporations or agencies, and also to cooperatives and other nonprofit organizations financed in whole or in part by loans made pursuant to the Rural Electrification Act of 1936 and any amendments thereof. Nothing in this subsection shall be applicable to provisions in existing contracts, made pursuant to law, for the use of power and miscellaneous revenues of a project for the benefit of users of water from such project. The provisions of this subsection respecting the terms of sales of electric power and leases of power privileges shall be in addition and alternative to any authority in existing laws relating to particular projects. No contract relating to municipal water supply or miscellaneous purposes or to electric power or power privileges shall be made unless, in the judgment of the Secretary, it will not impair the efficiency of the project for irrigation purposes.

NOTE

Furnishing to irrigation districts electrical energy for project irrigation operations.—On July 1, 1941, the Secretary approved a rate schedule for the sale of commercial electrical energy from the Minidoka project. The approval was based on a financial study which assumed and expressly stated that contracts with water-users organizations for the furnishing of power for pumping, as a part of the project irrigation operations, are not sales of electric power within the meaning of section 9 (c) of the Reclamation Project Act of 1939.

SEC. 9. (d) [No water delivered until repayment contract executed providing (1) development period for each irrigation block, (2) construction cost allocable to irrigation to be included in general repayment obligation—Distribution of construction charges on account of productivity of land and benefits accruing, (3) repayment in annual installments over period not exceeding forty years, (4) first annual installment on date fixed by Secretary, (5) (A) yearly installment of repayment obligations to be construction charge due for such year or (B) obligation to be increased or decreased on basis provided in sec. 4.] No water may be delivered for irrigation of lands in connection with any new project, new division of a project, or supplemental works on a project until an organization, satisfactory in form and powers to the Secretary, has entered into a repayment contract with the United States, in a form satisfactory to the Secretary, providing among other things—

(1) That the Secretary may fix a development period for each irrigation block, if any, of not to exceed ten years from and including the first calendar year in which water is delivered for the lands in said block; and that during the development period water shall be delivered to the lands in the irrigation block involved at a charge per annum per acre-foot, or other charge, to be fixed by the Secretary each year and to be paid in advance of delivery of water: *Provided*, That where the lands included in an irrigation block are for the most part lands owned by the United States, the Secretary, prior to execution of a repayment contract, may fix a development period, but in such case execution of such a contract shall be a condition precedent to delivery of water after the close of the development period. After the close of the development period, any such charges collected and which the Secretary determines to be in excess of the cost of the operation and maintenance during the development period shall be credited to the construction cost of the project in the manner determined by the Secretary.

(2) That the part of the construction costs allocated by the Secretary to irrigation shall be included in a general repayment obligation of the organization; and that the organization may vary its distribution of construction charges in a manner that takes into account the productivity of the various classes of lands and the benefits accruing to the lands by reason of the construction: *Provided*, That no distribution of construction charges over the lands included in the organization shall in any manner be deemed to relieve the organization or any party or any land therein of the organization's general obligation to the United States.

(3) That the general repayment obligation of the organization shall be spread in annual installments, of the number and amounts fixed by the Secretary, over a period not exceeding forty years, exclusive of any development period fixed under subsection (d) (1) of this section, for any project contract unit, or for any irrigation block, if the project contract unit be divided into two or more irrigation blocks.

(4) That the first annual installment for any project contract unit, or for any irrigation block, as the case may be, shall accrue, on the date fixed by the Secretary, in the year after the last year of the development period or, if there be no development period, in the calendar year after the Secretary announces that the construction contemplated in the repayment contract is substantially completed or is advanced to a point where delivery of water can be made to substantially all of the lands in said unit or block to be irrigated; and if there be no development period fixed, that prior to and including the year in which the Secretary makes said announcement water shall be delivered only on the toll charge basis hereinbefore provided for development periods.

(5) Either (A) that each year the installment of the organization's repayment obligation scheduled for such year shall be the construction charges due and payable by the organization for such year; or (B) that each year the installment for such year of the organization's repayment obligation shall be increased or decreased on the basis of the normal and percentages plan provided in section 4 of this Act for modification of existing obligations to pay construction charges, and the amount of the annual installment of the organization's obligation, as thus increased or decreased, shall be the construction charges due and payable for such year. Under (B) of this subsection the provisions of section 4 of this Act shall be applicable, as near as may be, to the repayment contract made in connection with the new project, new division of a project or supplemental works on a project; and the organization shall make payments on the basis therein provided until its general repayment obligation has become due and payable to the United States in full.

SEC. 9.(e). [Short- or long-term contracts to furnish water for irrigation—Payment in advance of delivery of water; cost of works to be covered by repayment contract under subsec. (d).] In lieu of entering into a repayment contract pursuant to the provisions of subsection (d) of this section to cover that part of the cost of the construction of works connected with water supply and allocated to irrigation, the Secretary, in his discretion, may enter into either short- or long-term contracts to furnish water for irrigation purposes. Each such contract shall be for such period, not to exceed forty years, and at such rates as in the Secretary's judgment will produce revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost and an appropriate share of such fixed charges as the Secretary deems proper, due consideration being given to that part of the cost of construction of works connected with water supply and allocated to irrigation; and shall require payment of said rates each year in advance of delivery of water for said year. In the event such contracts are made for furnishing water for irrigation purposes, the cost of any irrigation water distribution works constructed by the United States in connection with the new project, new division of a project, or supplemental works on a project, shall be covered by a repayment contract entered into pursuant to said subsection (d).

AUTHORIZATION OF GLENDO UNIT

Mr. PHILLIPS. I am reading the Glendo Act, Mr. Dexheimer. Let us have an understanding of how you interpret it. This is paragraph 1, section 1, of the resolved paragraph. It authorizes you to build the project, and so forth, and here I begin to quote—

and, through its physical and financial coordination and integration with the other Federal works constructed or authorized to be constructed—

and it gives a citation which I presume is the entire Missouri River Basin Act.

Mr. DEXHEIMER. Is it dated 1944?

Mr. PHILLIPS. Yes, December 22, 1944.

I quote again:

with the financial objective of returning its reimbursable costs during a 50-year repayment period.

What is section 1 (c) on flood control that we have here? Does anybody know, offhand, what this is? That has nothing to do with what we are talking about, has it?

Mr. DEXHEIMER. I do not recall.

Mr. PHILLIPS. Evidently the committee in putting out this joint resolution of July 16, 1954, contemplated that Glendo should pay itself out.

Mr. DEXHEIMER. No, sir; I think you will find just to the contrary in the words you just read, Mr. Phillips.

Mr. PHILLIPS. It says, "shall have the financial objective of returning its reimbursable costs."

Mr. DEXHEIMER. I think if you will read the first part of that it will be clear.

Mr. PHILLIPS. You mean, "and through its physical and financial coordination and integration with the other Federal works"?

Mr. DEXHEIMER. This very clearly authorized it, "through its physical and financial coordination and integration with other Federal works" built or to be built in the Missouri Basin project that that would result in the objective of repayment within the 50 years.

Mr. PHILLIPS. All right, but even then I suggest that you will find in the testimony this morning that you do not expect to be able to complete it within 50 years, but are hopeful that in the 50 years some of the money may be paid on the irrigation project construction and the balance of it paid after the end of the 50 years.

Mr. DEXHEIMER. In the overall financial study of the Missouri Basin project we do not know exactly how many years any particular unit at this time may require to pay out, Mr. Phillips.

Mr. PHILLIPS. Then you now give the committee, just to settle that, an objective of reimbursing in 50 years that give you leeway to go beyond that?

Mr. DEXHEIMER. Yes, sir, and the Congress repeatedly has approved repayment contracts that extend beyond 50 years.

(Discussion off the record.)

KIRWIN UNIT, KANSAS

Mr. DAVIS. The next project is the Kirwin unit in Kansas. Page 376 and the project data will be inserted in the record at this point.

(The matter referred to is as follows:)

MISSOURI RIVER BASIN PROJECT, KIRWIN UNIT

Date of planning: 1941.
Date of advance planning: 1946.
Date of authorization: Flood Control Act of December 22, 1944.
Original cost estimate: $10,000,000.
Date of reauthorization: None.
Estimated cost at start of construction: $18,155,000.
Present cost estimate: $19,210,000.

Date construction started: 1952.
Estimated date of functional completion: fiscal year 1958.
Remarks: The increase in cost estimate from $10 million to $19,210,000 was due to:

General price level change	$7,581,000
Changes in project plan	8,306,000
Structural and engineering modifications	(−)1,347,000
Inadequacy of estimate	(−)5,430,000
Other	100,000

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$18,995,552
Total obligations to June 30, 1954		11,219,742
Allotment, fiscal year 1955	$3,125,000	
Total obligations, fiscal year 1955		3,125,000
Allotment, fiscal year 1956	$1,400,000	
Total obligations, fiscal year 1956		1,400,000
Balance to complete		3,250,810

Work proposed, fiscal year 1956

Kirwin Dam and Reservoir ($505,375).—These funds will cover all remaining costs of Kirwin Dam and Reservoir. The contract time on the prime contract runs through the first half of fiscal year 1956. However, the contractor proposes to complete his work by the end of fiscal year 1955. If he accomplishes this objective and related servicing charges are thereby curtailed, and no unforeseen problems arise, substantial savings will develop in the estimated fiscal year 1956 program.

Kirwin Canal, laterals, and drains ($939,625).—The fiscal year 1956 program provides for acquisition of rights-of-way and earnings on prime contracts to be awarded in September 1955 for Kirwin main canal and Kirwin laterals, main canal; for acquisition of rights-of-way and earnings on prime contract to be awarded in December 1955 for Kirwin Canal and Kirwin laterals, north canal; and for preparation of plans and specifications and award of prime contract in June 1956 for Kirwin south canal and Kirwin laterals, south canal. These funds are required to allow delivery of initial water in April 1957.

General property.—Scheduled for fiscal year 1957 and fiscal year 1948.

Cooperative development.—Programed after 1961.

HISTORY OF PROJECT

Mr. DAVIS. We will ask you to give us a brief history of this project.

Mr. WALTER. Well, that would be directed to me, I presume.

Mr. DAVIS. Yes; go ahead.

Mr. WALTER. The planning of Kirwin started in 1941, and the advance planning in 1946. The construction started in 1952 under a supplemental act.

The repayment contract was signed in June 1953 with the Kirwin Irrigation District for the irrigation of approximately 11,500 acres.

The project consists of the Kirwin Dam and Reservoir, which is a multiple-purpose structure, providing irrigation, storage, flood control, fish and wildlife, and recreational benefits.

Mr. DAVIS. How much power is this Kirwin Dam expected to generate?

Mr. WALTER. The Kirwin Dam does not generate any power. It is within the Missouri Basin pool.

REPAYMENT

Mr. DAVIS. And you expect to be getting repayment to the Government starting in the fiscal year 1958. In other words that is the time when you expect to have this project in operation for beneficial use?

Mr. WALTER. That is correct.

Mr. DAVIS. What kind of a repayment program do you have for this project?

Mr. WALTER. In the case of the Kirwin repayment contract the repayment from the water users is $2,020,000. The balance being paid from the Missouri Basin pool power revenues is $5,821,000.

The repayment contract with the waterusers starts after a 5-year development period. It provides that the district will repay not to exceed $1,500,000 toward distribution system costs, in addition to the assumption of the cost of the construction of subsurface drains. Additional construction costs will be returned by irrigation through the construction component in water service charges.

Mr .DAVIS. And you still contemplate beneficial service here to 11,500 acres?

Mr. WALTER. That is right, sir.

Mr. DAVIS. Is that the original amount that was contemplated?

Mr. WALTER. Yes, sir; it is.

Mr. DAVIS. Is your construction pretty well on schedule? Are you going to have practically all of your funds obligated by the end of the current fiscal year?

Mr. WALTER. The project is approximately 95 percent complete. The dam will be completed early in the fiscal year 1956, and the funds that we are requesting this year will initiate the construction of the canals and the distribution system.

Mr. DAVIS. Those are the two things you expect to accomplish, the completion of the dam itself and then the initiation of the construction of the canals, laterals, and so forth?

Mr. WALTER. That is right; yes, sir.

Mr. DAVIS. Here, again, is a case where without adding anything to the big power capacity of the basin we are adding pretty close to a $6 million drain on the revenues from it?

Mr. DEXHEIMER. Yes, sir; that is correct.

BENEFIT-COST RATIO

Mr. DAVIS. What kind of a benefit-cost ratio do you have for this specific project? Do you have figures to show that?

Mr. WALTER. The benefit-cost ratio is 1.02, sir.

Mr. DAVIS. Is this in the wheat area of Kansas?

Mr. WALTER. Yes, sir. The current project is located in the vicinity of Kirwin, Kans. It spreads out from the town of Kirwin.

Mr. DAVIS. Yes; I see it. Is this primarily for crop benefit? Is what you anticipate here increasing wheat production?

Mr. DEXHEIMER. No, sir; the land would be taken out of wheat production. There is dry-land wheat production in this area, and it would be more suitable for other crops. Of course, there would still be millions of surrounding acres of dry-land wheat, but this project

would provide more in the nature of land for cattle feed, vegetables, and similar items.

Mr. DAVIS. On this project I cannot follow any connection actually between the portion of the cost which the water users would be expected to pay off and the benefit-cost ratio. In other words, here is a case where they are going to pay off a considerably larger percentage of the cost than in some other projects, but your benefit-cost ratio is getting awfully close to unity.

I would think that the improvement in the agricultural production would be not only a pretty good measure of the ability of the water users to pay off, but also a pretty good measure of the benefits that could be expected from the project, which would make for a high benefit-cost ratio. What is wrong with that thinking?

Mr. DEXHEIMER. The difficulty there, of course, Mr. Davis, stems from several things. In this particular case there has been a rather high yield from dry-land wheat farming, so when you change your agricultural production and irrigate for other crops, the difference in gross crop value is not so great as you might expect in some other places where they had not had reasonably good production in the past. There are also other factors involved. Of course, the climate generally and the soils, and all sorts of things enter into their ability to repay the cost. We find that where you have short growing seasons and rather limited ability, therefore, to produce higher priced crops, that their ability to repay is somewhat different than it would be in a different climate with different crops that they could grow.

Mr. DAVIS. There is going agriculture in these areas now, then, that would tend to detract from what otherwise might be a high benefit-cost ratio. Is that the size of it?

Mr. DEXHEIMER. Yes; because the benefit is largely based on the difference in gross crop value between what is now there and what may be expected under irrigation.

Mr. DAVIS. I would still think that the benefits to be derived would be an awfully good measure of the basis that ought to be used for the portion that the water users ought to pay.

Mr. DEXHEIMER. Well it is not, Mr. Davis. The basis for their repayment is based on their ability to repay, and that is determined by their gross returns because of irrigation and other factors.

We do not believe that the benefit-cost ratio actually should be applied to some of these units as such, because it limits the benefits which can be attributed to those particular projects to a very narrow field. We feel that the benefit to the individual farmer and the surrounding area, and to the Nation as a whole, is so much greater than can be reflected in the benefit-cost ratio, that even a project with less than unity as the benefit-cost ratio still might be adequately justified and should probably go ahead if it can be shown that the improvement in the general economy and the stability of the area will justify it.

STATUS OF CONSTRUCTION

Mr. RILEY. It is indicated here that the contractor on the dam and reservoir may practically finish his part of the work in this fiscal year. What is the current status of the construction?

Mr. DEXHEIMER. Construction of the dam is 97 percent complete and we expect to finish up the concrete and earth work this year.

Mr. RILEY. The proposal is that it will be completed in 1956?

Mr. DEXHEIMER. Yes, sir.
Mr. RILEY. That is, this part of it?
Mr. DEXHEIMER. Yes, sir.

AUTHORIZATION OF PROJECTS

Mr. PHILLIPS. I am still trying to figure out your authorization for this formula that you apply to these little projects.

I read from Federal Reclamation Laws, Annotated, which is a codification of the reclamation laws, page 96. In section 5 it states, and I will read the entire section, that:

> Whenever a development of power is necessary for the irrigation of lands under any project undertaken under the said Reclamation Act, or an opportunity is afforded for the development of power under any such project, the Secretary of the Interior is authorized to lease for a period not exceeding 10 years, giving preference to municipal purposes, any surplus power privilege, and the moneys derived from such leases shall be covered into the reclamation fund and be placed to the credit of that project from which such power is derived.

Is that part of your authorization that we are talking about now?

Mr. DEXHEIMER. No, sir; that is rather outdated, and has been changed since then. It does not apply to the authorization of these projects except under general authority to construct and, if deemed appropriate, to lease or otherwise or have someone else develop the power facilities. It does set up, of course, the preference clause for certain customers.

Mr. PHILLIPS. Mr. Chairman, I did not know whether you were here at the time, or whether you were called to the telephone when Mr. Davis initiated a line of questioning which I think is extremely important. I will not ask any questions about the Kirwin unit at this time, but I will make a formal request of the subcommittee to ask the Corps of Engineers for the latest cost allocation to power made for the main stem plants, multiple-purpose plants, Fort Peck, Garrison, Oahe, Fort Randall, and Gavins Point, and the annual cost of power on a 50-year amortization basis with interest at the rate of 2½ percent.

That would also include a request for the expected annual revenues from these same plants on the basis of interim rates now proposed, taking into account all transmission costs, wheeling charges, and expected irrigation benefits.

I am convinced, even after the few days that I have been on the committee, that we are dealing, in a great many instances here with figures which, first of all, are very general and, second, in many cases were not authorized to the extent to which we are being asked for money and, third, based upon an assumption of revenue for repayment which is not apparent in the testimony.

Mr. RILEY. Was it proposed to incorporate this information in the study which is now being made and that Secretary Aandahl previously referred to? Would this information be available through that report?

Mr. PHILLIPS. Yes; Secretary Aandahl referred to that study.

Mr. DEXHEIMER. It will be available when that report is finished. Mr. Phillips suggested that you ask the Corps of Engineers for information on the power costs and so forth, on the main stem in the Missouri Basin.

I do not know that we would be prepared yet to give that to you other than the study which was made available in 1953. It is essentially very much the same thing that is in the records of the committee, I am sure, and is available to you, but this further information that we can get we would be glad to furnish you.

Mr. PHILLIPS. Then we reach not exactly an impasse, but this is the situation: If we ask the Corps of Engineers for something they say we have no figures on that since 1953, we would like to bring that up to date, and that is all right. Then we ask the Bureau for something, and the Bureau says these are the figures which we have, and we have an extensive study going on, but it is not ready yet, but then we are still being asked to continue to appropriate money for these projects about which we do not have accurate information.

I think it would be helpful if we had it.

Mr. RILEY. Yes; I would like to have this information too, but I think your request is a little bit late for the consideration of appropriations this year. If the Engineers can furnish it to us all right. I am inclined to think that they would not be able to furnish it in time for us to consider it this year.

Mr. PHILLIPS. Could we at least have the 1953 figures here that Mr. Dexheimer talks about?

Mr. RILEY. Yes, surely.

Mr. PHILLIPS. That is all I have, Mr. Chairman.

Mr. RILEY. We can ask the Engineers to give us the figures based on their latest information.

(The figures on the table of costs of main-stem plants may be found in the appendix, p. 558. The figures on revenues from power in the Missouri River Basin project appear on p. 368.)

LOWER MARIAS UNIT

Mr. RILEY. The committee will come to order.

The next unit to be considered will be the lower Marias unit. We will ask that the project data and pages 386 to 388 be inserted in the record.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, LOWER MARIAS

Date of planning: 1903.
Date of advance planning: 1946.
Date of authorization: Flood Control Act of December 22, 1944.
Original cost estimate (1944): $19,700,000.
Date of reauthorization: None.
Estimated cost at start of construction: $64,065,000.
Present cost estimate: $66,150,000.
Date construction started: 1952.
Estimated date of functional completion: Fiscal year 1968.
Remarks: Increase in estimated cost from $19,700,000 to $66,150,000 was due to:
General price level change: $24,698,000.
Change in project plans: 4,484,000.
Structural and engineering modifications: 150,000.
Inadequacy of estimate: 10,099,000.
Other: 7,019,000.

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$65,837,305
Total obligations to June 30, 1954	11,087,305
Allotment, fiscal year 1955	5,696,000
Prior year balance available	404,000
Total obligations, fiscal year 1955	6,100,000
Allotment, fiscal year 1956	6,500,000
Total obligations, fiscal year 1956	6,500,000
Balance to complete	42,150,000

Work proposed, fiscal year 1956

Tiber Dam and Reservoir ($3,891,085).—Major construction will be completed under the prime contract awarded in 1952. Funds are also required for relocation of a gas line, continuation of construction of road relocations, clearing lands, access roads, land and land rights, and for payments to material suppliers for contracts already in effect to be awarded. The program is scheduled to be complete except for construction drawings and reports.

Lonesome Lake Dam and Reservoir ($300).—Investigations will be continued.

Sandy Gravity Diversion Dam and Sandy Gravity Canal ($2,500).—Investigations will be continued.

Marias Canal, mile 0 to 39.9 ($2,073,600).—This is a new construction start necessary for the canal system to distribute water from Tiber Dam and Reservoir to the project lands. A contract for the tunnel from the reservoir outlet will be awarded in the second quarter and a contract, or contracts, for the balance of the first 14 miles of the waterway and structures will be awarded in the third quarter. Completion of construction is scheduled for fiscal year 1959, the date of proposed initial delivery of water.

Marias Canal, mile 39.9 to 77.1 ($15,000).—Investigations will be continued.

Kenilfeeder Canal, Kenilgravity Canal, and pumping plants and canals ($46,000).—Investigations will be continued. Included also are studies of alternate areas which can be included in the definite plan if the pumping plants are not constructed.

Laterals (mile 14 to 39.9) ($80,000).—Design data will be completed for the first block of land to be irrigated from the Marias Canal, mile 0 to 39.9. Collection of design data for the second block will be under way.

Laterals (remaining) ($25,000).—Investigations will be continued for the remainder of the lateral system.

Drains (mile 14 to 39.9) ($45,000).—Design data will be completed for the first block of land to be irrigated from the Marias Canal, mile 0 to 39.9. Collection of design data for the second block will be under way.

Drains (remaining) ($20,000).—Investigations will be continued for the remainder of the drainage system.

Development farm ($103,855).—Construction of the farm will be started early in the fiscal year in order to be ready to start irrigation in the spring of the year. This will allow a 3-year period of operation before water is made available to the fist block of the unit from the Marias Canal. This amount is required to purchase and install pumping plant, construct discharge lines, canals, and drains, buildings, fences, etc., lease and develop lands for irrigation, purchase farm equipment and other expenses incidental to developing an isolated irrigated farm where water supply must be pumped from the river until the regular supply is available. In addition to the usual research and demonstration phase, the lower Marias farm will be used to aid in solving some of the serious water use and drainage problems peculiar to the unit and should be constructed as scheduled to be of maximum utility in answering these questions.

Tiber powerplant and switchyard ($1,000).—Investigations prior to the initiation of construction in fiscal year 1957 will be continued.

Kenil powerplant and switchyard ($1,000).—Investigations will be continued.

Pumping plant lines and substation.—All activity on this item deferred until future years, dependent on future requirements for pumping.

General property (permanent camp at Tiber Dam and equipment) ($35,000).—Additional equipment required for operation and maintenance of Tiber Dam and Reservoir will be purchased.

General property (permanent Marias camp and equipment) ($200,000).—Construction will be initiated on this camp which is to be located in the project area and will serve temporarily as construction headquarters for construction of irrigation facilities beyond mile 14 of the Marias Canal and will serve permanently as operation and maintenance headquarters.

General property (recreational development—NPS).—All activity on this item deferred until future years.

HISTORY AND STATUS OF PROJECT

Mr. RILEY. I understand from the letter inserted in the record this morning that a portion of this project is being deferred.

Mr. CLINTON. That is correct.

Mr. RILEY. Would you comment on that, Mr. Clinton?

Mr. CLINTON. In order to give you the reason for its being deferred, Mr. Chairman, I had better give you a little history of the lower Marias unit.

It was first investigated back in 1903 by the Reclamation Service and had been under investigation at various times up until the drought of the 1930's.

During the drought of the 1930's the Marias Valley was very hard hit. The production of wheat was almost completely stopped, and the livestock industry was badly crippled in that area, and land values got down to one and two dollars an acre. In fact, a lot of land was sold for taxes.

Because of that situation the local people urged the Bureau to complete their investigation of the project and get it up to the construction stage.

There was some work done after the drought, sufficient to outline the plan generally, and it was included in the so-called Pick-Sloan plan which was the basis for the authorization of the entire Missouri Basin project in 1944.

The detailed planning started in 1946, and by 1950 the Bureau had its work far enough along that it was ready to start construction; in 1950, an irrigation district was formed. There was considerable difference of opinion at that time among the landowners. Some of them wanted irrigation and some didn't.

At the time the district organization was confirmed by the court, several landowners on the south edge of the project area withdrew.

That still left the district, together with Indian lands, which comprised about 80,000 acres. The Bureau felt that the amount of land we had in the district, plus the alternative areas they had to pick from on both the north and south sides of the project justified going ahead with the original plan for 127,000 acres.

Money was appropriated to start the construction of the Tiber Dam in 1950 and bids were let shortly after the district was formed.

But because of the Korean war, the funds which had been appropriated to start construction were withdrawn. The unit was left idle, then, until 1953, that is fiscal year 1953, when money was again appropriated.

At that time they still had the district intact, and the Bureau went ahead with construction of the dam. They let the main contract in September of 1952.

Since the construction of the dam took quite a while before there was a need for starting the irrigation facilities, we deferred them.

We are up to the stage this year where it was advisable to start the irrigation canals so that they would be ready shortly after the reservoir was completed.

We asked for money in fiscal year 1956 for that purpose.

At the time we sent our budget request in last fall we had a resolution from the district board of commissioners saying that they were agreeable to the repayment contract draft which had been presented to them and they were willing to circulate it among their water users and get the required number of petitions signed.

The board has worked on that during the winter and this spring, but because of the excellent crop return, dry farm wheat crop return, that the landowners received last year, which was the best in the history of that entire area, and the prospect of possibly as good a crop this year, some of the landowners were reluctant to make the shift at this time to irrigation.

We feel there will not be a chance to get a repayment contract before the end of fiscal year 1956. Therefore, that is the reason why we are not starting the construction of the irrigation canals and why this amount of money which was covered in the letter is surplus.

That turn of events came about just some 3 or 4 weeks ago when the board of commissioners met and canvassed the petitions which they had circulated up to that time, and made their decision. There was no hope of going on with circulation of petitions and obtaining the required number of signers under Montana law at this particular season.

We do feel, however, and the district board shares our feeling, that the landowners will want irrigation as soon as the first dry year comes along, so our request for money this year, after this adjustment, is confined to only that required to complete Tiber Dam and reservoir.

Mr. RILEY. Would that be $3,675,000?

Mr. CLINTON. That is correct.

Mr. RILEY. Is this one of your better projects from a benefit-to-cost ratio standpoint?

Mr. CLINTON. Yes, it is, sir. It has a ratio of 2 to 1.

DEVELOPMENT FARM

Mr. RILEY. I note that there is a $103,855 program for a development farm. Could you tell us the need for this and whether or not that amount is incorporated in the repayment contract?

Mr. CLINTON. Yes, sir. In the request which was prepared last fall, when we anticipated going ahead with the construction of irrigation canals this year, we needed the development farm in order to have some experience with irrigated farming on that land before settlers started the actual application of irrigation water on a large scale.

Since we are not going ahead with the irrigation system, we are also deferring the development farm, and it is not included in the residual funds we are asking to have retained on the unit.

PRECEDENT FOR DEFERRAL OF IRRIGATION

Mr. MAGNUSON. Do you have a precedent for this or projects pretty well along where landowners, due to better conditions, decided they didn't need water after all?

Mr. CLINTON. Yes. We had one a year ago on the Missouri diversion unit which was before the Congress last year. They were again in a year of high wheat crop production, so they decided against irrigation.

We may have repetitions of this situation where we are building a project to convert from dry-farm agriculture over to irrigated agriculture. It may take a drought to make the transition.

Mr. MAGNUSON. How does it look this year?

Mr. CLINTON. They are looking for a good crop because of the heavy spring snows they had in that area in March and April, and are depending on the good carryover of soil moisture during the summer. If they get reasonable rains in June they will have a bumper crop again this year.

Mr. MAGNUSON. In which case you would expect perhaps not to be able to negotiate repayment contracts before you come back again next year?

Mr. CLINTON. That is right. We assume the board of commissioners of the district will canvass the situation again this fall and decide whether it is appropriate to circulate petitions again or not. We will be guided by their advice as to whether or not we ask for funds next year.

Mr. DEXHEIMER. There may be other factors than just the weather which might affect the dryland farmers, such as a change in the price-support program or the amount of wheat that the Government finances.

Mr. MAGNUSON. What happens if they have 15 good years in a row? What happens to this project.

Mr. CLINTON. I think the lower Yellowstone project is a good example. That was converted from dry-farm agriculture in the thirities to an irrigated area. It was built by the Bureau of Reclamation. Conversion was completed during the drought. That project area has been irrigated right on through these boom years of good wheat prices and rain, and none of that land has gone back to dry-farm agriculture.

Once the conversion is made, and you get irrigation farmers on land, and it is subdivided into smaller units, it continues to be irrigated.

Mr. MAGNUSON. What do they grow?

Mr. CLINTON. Sugar beets, hay, and forage will be their main crops. It will be very good feed base for the livestock industry in the surrounding area.

Mr. MAGNUSON. I assume that due to the large number of dry years they justified the project in the first place.

Mr. CLINTON. It was justified mostly due to the long drought periods they had in the thirties when that country was in a desperate state.

The oldtimers in that area still remember it, and the same people who were there then want the irrigation now.

It is the newcomers who haven't experienced that who don't realize the value of irrigation yet.

COST ALLOCATIONS

Mr. MAGNUSON. Is the bulk of our investment there now in irrigation?

Mr. CLINTON. No; it is divided between irrigation and flood control, Mr. Magnuson.

You will note on page 384 there is an allocation of the total cost of the unit.

You will note there that $3,713,000 is allocated to flood control. That is all due to construction of the reservoir.

That is based on only partial use of the reservoir for flood control. The major portion of the reservoir was planned to be used for irrigation.

Mr. MAGNUSON. I have not found the figure which indicates how much has gone into the project.

Mr. CLINTON. Total cost of the dam and reservoir is $19,448,000. All of that has been spent except what we are asking for this year, or will have been spent by the end of this fiscal year except what we are asking for in fiscal year 1956, which is $3,600,000 in round numbers.

There has been over 80 percent of the cost of the dam already spent.

Mr. MAGNUSON. There has been substantial increase in the cost of this project over the original estimate?

Mr. CLINTON. Yes.

Mr. MAGNUSON. From $19 million-plus to $66 million-plus?

Mr. CLINTON. Yes, sir.

Mr. MAGNUSON. Does that represent additional acreage, redesigning?

Mr. CLINTON. Some of it is due to additional acreage for the project. Originally it was a smaller area than now and it is also because of changing the location and the height of the dam.

A good part of it is due to price increases. This original estimate went back to the thirties and based on cost indices of the thirties.

I think some $24 million of it is due to change in construction costs from the mid-thirties to the present time.

Mr. MAGNUSON. The taxpayers don't come out very well with a repayment contract; do they? They get some value out of flood control.

Mr. CLINTON. I can give you some figures on that if irrigation never were developed.

First the value of the reservoir for flood control would be greatly increased. The entire reservoir then would be available for flood control.

On the basis of the entire reservoir being available for flood control the allocation of the flood-control allocation would go up to $8 million, so you would have 8 of the $19 million returned through flood-control benefits.

The other possibility is that if it is never used for irrigation it will have value for power. We do not now contemplate building a powerplant there which would fully utilize that reservoir capacity, but if it ever were done the power could make an additional contribution in paying back the cost of that $19 million reservoir.

Mr. MAGNUSON. You must have some investment for strictly irrigation facilities?

Mr. CLINTON. Just in the planning part of it. We have not built irrigation facilities as yet. We will leave it that way until we have a repayment contract.

Mr. DEXHEIMER. If I may enlarge on that a little bit.

If this were changed; that is, if the irrigation were permanently dropped out, we could then go in with a different plan and develop the maximum amount of power and utilize the reservoir for maximum amount of flood control.

But the flood control doesn't pay back a cent.

Certain national benefits and local benefits stem from that so it would be advantageous if we could develop irrigation. Of course we would have repayment of that part of the cost.

POWER

Mr. MAGNUSON. Do you have any estimate as to the amount of power which could be produced assuming you had a full reservoir?

Mr. CLINTON. If the full reservoir were available for power use we could justify up to about 10,000 kilowatts, which would give us about 5,000 kilowatts of firm power out of it the year round.

Mr. RILEY. Mr. Davis, do you have any questions on the lower Marias unit?

BENEFIT-COST RATIO

Mr. DAVIS. Yes.

Let me ask you how the anticipated benefits on this project are divided.

Mr. CLINTON. They are divided, Mr. Davis, between flood control and irrigation.

As I stated before you came in, the overall benefit-cost ratio of the whole unit is 2 to 1. I do not have with me the breakdown now between flood control and irrigation, how much of that is due to flood control and how much is due to irrigation.

Mr. DAVIS. Does that 2 figure include the eventual power which is mentioned in the justifications?

Mr. CLINTON. Yes, it includes the small 2,000-kilowatt powerplant.

Mr. DAVIS. Will you insert for the record, please, a breakdown of those benefits so that we can tell how that is divided?

Mr. CLINTON. Yes, sir; I will.

(The matter referred to follows:)

BENEFIT-COST RATIO OF LOWER MARIAS UNIT, MISSOURI RIVER BASIN PROJECT

Project costs	$66,150,000
Irrigation	60,256,000
Power	2,070,000
Flood control and navigation	3,713,000
Recreation	111,000
Adjusted total cost including irrigation and pumping power	67,917,000
Interest during construction	4,211,000
Public investment including interest during construction	72,128,000
Annual equivalent cost	1,969,800
Annual assigned operation, maintenance and replacement	296,300
Annual taxes foregone (power)	33,800
Total annual cost	2,299,900
Total annual benefits	4,719,600
Benefit-cost ratio	2.05

BENEFIT-COST RATIO OF LOWER MARIAS UNIT, MISSOURI RIVER BASIN PROJECT—Continued

Benefits	$4,719,600
Irrigation	4,455,800
Direct	1,934,800
Indirect	2,521,000
Power	102,300
Flood control and navigation	99,000
Fish and wildlife	62,500
Annual operation, maintenance and replacement	296,300
Irrigation	270,400
Power	24,700
Flood control and navigation	1,200

RAPID VALLEY UNIT, SOUTH DAKOTA

Mr. RILEY. Next unit is the Rapid Valley unit in South Dakota. We will insert the project data and page 394 of the justification.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, RAPID VALLEY UNIT

Date of planning: 1937.
Date of advance planning: 1949.
Date of authorization: Flood Control Act of December 22, 1944.
Original estimated cost of Brennan Reservoir (only feature originally proposed under MRBP), (1944): $950,000.
Original estimated cost of Pactola Reservoir in 1939 when construction proposed as a Water Conservation and Utilization Project: $2,470,000.
(Deerfield Reservoir was built in lieu of Pactola Reservoir under WCU program plus Pactola Reservoir later was substituted for Brennan Reservoir in MRBP construction.)
Date of Reauthorization: None.
Estimated cost of Rapid Valley unit in 1952 when construction of Pactola Reservoir commenced: $8,948,000.
Present cost estimate: $8,913,000.
Date construction started: 1952.
Estimated date of functional completion; Dam, fiscal year 1956; irrigation works, fiscal year 1960.

Remarks: The increase in estimated cost of this unit resulted principally from changes in the size and scope of the unit and increases in the general price level. Pactola Reservoir capacity increased from 40,000 acre-feet contemplated in 1939 to 99,000 acre-feet principally to provide space for flood control. Also construction of an irrigation distribution system not perviously contemplated now is included in the plan.

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations	$8,774,901
Total obligations to June 30, 1954	4,974,968
Allotment, fiscal year 1955	2,149,700
Prior year balance available	248,233
Total obligations, fiscal year 1955	2,397,933
Allotment, fiscal year 1956	490,000
Total obligations, fiscal year 1956	490,000
Balance to complete	912,000

Work proposed, fiscal year 1956

Pactola Dam and Reservoir (*$736,325*).—Construction of Pactola Dam will be completed and storage of water will commence. Relocation of U. S. Highway 85A and the Forest Service access road will be completed. Funds are also required for purchase of necessary materials and supplies.

Iowa Canal diversion dam and Iowa Canal and extensions (*$17,887*).—Investigations will be continued and a draft of the definite plan report, part II, will be completed.

Iowa extension laterals (*$15,013*).—Investigations will be conducted to obtain information for the irrigation portion of the definite plan report and preparation of preconstructin data.

Iowa drains (*$5,133*).—Investigations will be continued to obtain definite plan report information and for preparation of preconstruction data.

General property.—No additional program scheduled until 1960.

DESCRIPTION AND HISTORY

Mr. RILEY. I understand the funds asked for for this unit are $490,000, and they will complete the Pactola Dam and make water available for Rapid City, S. Dak., and for the Rapid City Air Base, as well as for irrigation.

Is that correct?

Mr. CLINTON. That is correct, Mr. Chairman.

Mr. RILEY. What are those places doing for water now?

Mr. CLINTON. At the time construction was started on this dam the air base was in a pretty bad situation for a water supply. All they had at that time were deep wells. They tapped an underground flow of hot water, and the air base had to treat that water, cool it first, spend a lot of money treating it, and even after the treating it was not what could be considered good, potable water.

When construction of the Pactola Reservoir is completed it will give the air base a supply of good, potable water which requires little treatment and give it adequate quantities which they cannot get from wells. They have had difficulty in meeting their supply from wells even in the initial stages of the operation of that base.

The city of Rapid City also is short of water and their only possibility of increasing their supply is through some additional storage on the stream, which Pactola Reservoir will supply.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. RILEY. How large a city is Rapid City?

Mr. CLINTON. The 1950 population of Rapid City was 25,300.

To indicate the rate of growth, it had 13,800 in 1940.

I do not know what the present population is, but there has been a continued rapid growth since 1950.

Mr. RILEY. Mr. Magnuson?

Mr. MAGNUSON. I have no questions.

Mr. RILEY. Mr. Davis?

Mr. DAVIS. This is the project where some work was done prior to World War II and it was held in abeyance until after the war. Is that the history of this?

Mr. CLINTON. That is right. One reservoir was built prior to the war, and then all work was terminated until after the war, when the second reservoir, Pactola Reservoir, was started.

REPAYMENT

Mr. DAVIS. Here is another one of those cases where we will get about 5 percent of the repayment from the water users themselves.

Mr. CLINTON. I think the people who prepared this justification were entirely too conservative in this particular one with respect to the figures they put down on repayment. They have included only repayment from supplemental water. At the same time they have included the costs of developing 2,200 acres of new land, without showing any repayment from the new land.

Mr. DAVIS. Was that an error in the justification then?

Mr. CLINTON. I would say it is an error in the justifications.

If they had left it as it is they should have put in a footnote stating it was supplemental water only.

I would like to correct that.

Mr. DEXHEIMER. It also should be pointed out that the municipal water supply has costs allocated to that and also the air base water supply, which amount was written off. Only the irrigation charges we are talking about on repayment have a percentage like that.

Mr. DAVIS. On page 392 of the justifications, that is what I was referring to, is the terminology improper when it shows only $14 is to come from water users?

Mr. CLINTON. That is correct, and possibly the reason why the additional repayment was not shown is because we have not finished an investigation of the plan for development of the 2,200 acres and no final figures have been settled there for repayment.

As Mr. Dexheimer said, we do have a repayment contract with the city of Rapid City. It is a 40-year water service contract. The revenues from that repayment contract over 40 years, plus the amount which was written off for the air base, would cover the entire cost of the Pactola Reservoir.

We do have a comfortable payout picture for the investment we have in now.

Mr. DEXHEIMER. It might be well to note we have also reduced our overall estimate there based on various factors of engineering and lower bids than we anticipated on construction work.

Mr. DAVIS. Where does the Elsworth Air Field Base lie?

Mr. CLINTON. This is the city Rapid City, right on Rapid Creek itself. The air base is just north of the town. It is not shown on the map, but it is a distance of about 5 miles or so from town.

The green area shown along the stream below Rapid City is the area under cultivation now, which is irrigated now, and needs supplemental water from storage.

Mr. DAVIS. The dam itself is how far from the city approximately?

Mr. CLINTON. About 15 miles.

Mr. DAVIS. And from the base?

Mr. CLINTON. A little farther out, about 5 miles. You have to go through town and then out to the base.

Mr. DOMINY. We drop the water through Rapid Creek, the city picks it up and puts it through the purification plant, and the Air Force built a water main from the city to the base, and pays the city for the purification service which the city provides.

Mr. MAGNUSON. I notice the estimated net increase in income per acre from the irrigation project is only $1.07.

Mr. CLINTON. That is for supplemental water only. They need only a small amount of supplemental water on the old irrigated lands. That is the measure of increase that they would get.

Mr. RILEY. Benefit-cost ratio is favorable; is it?

Mr. CLINTON. It is 2 to 1, Mr. Chairman.

SARGENT UNIT

Mr. RILEY. Next project is the Sargent unit.

Without objection we will insert the project data pages 400 and 401 in the record.

(The matter referred to is as follows.)

MISSOURI RIVER BASIN PROJECT, SARGENT UNIT

Date of planning: 1944.
Date of advance planning: 1950.
Date of authorization: Flood Control Act of December 22, 1944.
Original cost estimate (1950): $10,046,000.
Cost estimate at start of construction (1954): $16,119,000.
Date of reauthorization: None.
Present cost estimate: $16,577,000.
Date construction started: 1955.
Functional completion of construction:
Initial features: fiscal year 1958.
Deferred features: After fiscal year 1961.
Remarks: Increase in estimate from $10,046,000 (1950) to $16,577,000 (1955) due to:

General price level rise	$1,564,100
Change in project plans	99,100
Structural and engineering modifications	2,016,000
Inadequacy of estimates	2,938,800
Other	−87,000

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$16,131,273
Total obligations to June 30, 1954		906,666
Allotment, fiscal year 1955	$1,000,000	
Total obligations, fiscal year 1955		1,000,000
Allotment, fiscal year 1956	3,300,000	
Total obligations, fiscal year 1956		3,300,000
Balance to complete		10,924,607

Work proposed, fiscal year 1956

Milburn diversion works, Sargent Canal, laterals and detention dikes ($3,185,544).—Construction of the Milburn diversion works will continue and be completed near the end of fiscal year 1956. Construction will continue on the Sargent Canal-sections 1 and 2 and associated detention dikes and channels with the work to be largely completed during the fiscal year. An award will be made and work initiated for the final section of the canal and detention dikes. Awards will be made during the fiscal year for both sections of the Sargent laterals with the first section to be partially completed by the end of the fiscal year. This schedule will provide for the irrigation of 3,000 acres of land during 1956 irrigation year.

Woods Park pumping plant and service line ($2,100).—Work will be initiated on the construction of these minor features in coordination with work on the third section of the Sargent Canal which will provide the Woods Park area water supply.

Lillian Canal and laterals.—Construction deferred pending determination of feasibility.

Sargent surface and subsurface drains.—Construction deferred pending determination of exact drainage requirements.

Lillian surface and subsurface drains.—Construction deferred pending determination of feasibility.

Lillian powerplant and switchyard.—Construction deferred pending determination of feasibility.

General service equipment ($59,377).—For purchase of transportation, shop, tools, and work equipment necessary to carry out construction activities and later release of completed facilities to water users.

STATUS OF PROJECT

Mr. RILEY. You are requesting $3,300,000 for fiscal 1956. Is that right?

Mr. DEXHEIMER. Yes, sir.

Mr. RILEY. These funds are to be used to continue construction of diversion work, canals, dikes, and channels?

Mr. WALTER. That is correct, sir.

Mr. RILEY. Has repayment contract on this been executed?

Mr. WALTER. Yes, sir. The repayment contract was executed October 11, 1954.

Mr. RILEY. When was first construction money on this project appropriated?

Mr. WALTER. Mr. Chairman, this was a new start in November of 1954.

Mr. RILEY. Is that one of the projects included in the supplemental bill last year?

Mr. WALTER. Yes, sir.

Mr. RILEY. Mr. Magnuson?

REPAYMENT

Mr. MAGNUSON. Water users will pay back exactly the same amount as the increase in their income from irrigation?

Mr. WALTER. That is correct.

Mr. MAGNUSON. $7.10 an acre?

Mr. WALTER. Yes, sir.

Mr. MAGNUSON. Is that unusual?

Mr. WALTER. Yes, sir; that is what we always like to get. We usually get a little less than the actual amount.

Mr. MAGNUSON. From my observations of the project we have had earlier they are usually quite a lot less. Is that right?

Mr. WALTER. Yes.

Mr. MAGNUSON. Haven't we had projects where estimated increase in income was $50 and they were paying back $2 or $3?

Mr. WALTER. That is right.

Mr. DEXHEIMER. It should be understood that in many cases their increased estimated yield or profit per acre did not only have to pay these charges but they also in many cases have to pay other costs of operation and maintenance of their canal system, and perhaps rehabilitation of that canal system to carry the water, and many other things which enter into their ability to repay.

We try to negotiate a contract for repayment on the basis of their ability to pay, considering all of their other obligations which they are required to meet.

You cannot always be consistent in arriving at what they should repay in negotiating a contract.

Mr. DOMINY. I would like the record to show a specific "No" to that question of $50 an acre increase in net income and only $2 or $3 repayment.

I know of no instance where we show a net income increase of as much as $50 per acre through irrigation in these Missouri Basin units.

You will find most of them run $7 to $9 or $10 net increase per acre and our repayments vary from $5 to $7 or $7.50; along in that range.

Mr. MAGNUSON. I am just relying on my memory. I undoubtedly am wrong, but I would like to go back here to one of the previous projects.

Mr. DOMINY. Off the record.

(Discussion held off the record.)

Mr. MAGNUSON. Is it a logical deduction that this is pretty good farmland without irrigation?

Mr. WALTER. Yes, sir; it is good farmland, but the troubles from drainage and lack of ability to get water on the land during critical periods of need is the reason for this unit.

The project furnishes very good protection from runoff. It has also a simple diversion, and does not have a large storage dam connected with it.

POWER

Mr. MAGNUSON. You have a small power factor in this; have you?

Mr. WALTER. There is a powerplant of 4,400-kilowatt capacity which has been deferred.

Mr. MAGNUSON. Deferred indefinitely?

Mr. WALTER. It is deferred until it can be interconnected with other plants. It will not stand by itself.

Mr. DAVIS. You have this Sargent unit shown on the map. Where in relation to that is this so-called Lillian project which would include the proposed power unit, and so on, which has been deferred?

Mr. WALTER. If you will look at the upper end of the map, No. 1 indicates the diversion dam in the southeastern part of Blaine County.

The Canal extends down the lower side, to the vicinity of Woolworth, and the little powerplant is indicated by No. 3, just south of Woolworth, Nebr.

Mr. DAVIS. The Lillian irrigation unit would be located where?

Mr. WALTER. In the light area between the canal and the river. It amounts to about 3,800 acres.

Mr. DAVIS. What is the annual rainfall in this area?

Mr. WALTER. I do not know exactly; about 26 inches.

Mr. DOMINY. I do not think it is in as high as a 26-inch-rainfall belt. I would say it was in an average of around a 20-inch-rainfall belt in that portion of the country.

Mr. DEXHEIMER. That rainfall is rather unreliable, too. Quite often, particularly in the summer, it comes in quite large, heavy thundershowers that run off immediately and quite often cause more damage than they do good for irrigation.

Mr. DAVIS. Primarily, this is a wheat area now?

Mr. WALTER. No, sir.

Mr. DAVIS. Then it would be for corn and other cultivated crops?

Mr. WALTER. No. This is on the edge of the Corn Belt and the surrounding country is mostly ranch land. It is at the edge of the

famous sand-hills area, which is devoted mostly to cattle raising. These valleys, in the area to the east, are corn areas. They raise corn mostly.

STATUS OF PROJECT

Mr. DAVIS. You had $1 million in a supplemental to get this thing started last year. What actually has been done physically and what contractual commitments have you made?

Mr. WALTER. The construction contract was let in November 1954. We have a diversion dam pretty well underway and a section of the Sargent Canal is under construction. The Sargent unit is about 6 percent complete, overall.

Mr. DAVIS. Your request this year is for $3.3 million, and that would bring the Sargent section of it how far along toward completion?

Mr. WALTER. This year's appropriation?

Mr. DAVIS. Yes.

Mr. CROSTHWAIT. It would be over 62 percent.

Mr. WALTER. About 62 percent. We would complete it in 1958 fiscal year.

Mr. DAVIS. This stands on its own, whether or not the eventual decision is made to proceed with the so-called Lillian project?

Mr. WALTER. That is right.

Mr. DAVIS. I do not quite follow page 399 that $7 million of the cost is allocated to power and then, in your breakdown of the items that make up the $16 million, I cannot find that identified in any way. The only item is on the Lillian powerplant and switchyard, $2 million.

Mr. WALTER. You would have to add the Lillian Canal, which would be a supply canal.

Mr. DOMINY. If the powerplant were installed, then a portion of the Milburn diversion dam and a portion of the Lillian Canal would properly be allocated to power, because power would then share in the use of those two facilities.

Mr. DAVIS. For the time being, though, you have the Lillian Canal, the Lillian surface drains, and the Lillian powerplant all in a deferred status subject to further study?

Mr. DOMINY. That is right. We are building only that first unit, the Sargent Canal. So, then, it logically follows, if you do not ever build the Lillian unit, this full cost of Milburn diversion dam would, of course, have to be assigned to Sargent.

COST ALLOCATIONS

Mr. DAVIS. What is this figure of 1.07 as to the benefit-to-cost ratio? How was that computed in relation to what you have just told us?

Mr. WALTER. That is computed on the whole project, including the powerplant and the facilities.

Mr. DAVIS. It makes me very seriously wonder about the correctness of your statement a minute ago that this thing was standing on its own feet.

Mr. DEXHEIMER. I think that has been brought out in this way, that the 1.07 includes the Lillian Canal and powerplant; but because of the infeasibility of building the Lillian Canal powerplant at this time,

we are deferring this and would expect that the benefit-cost ratio on what we are going ahead with would be even better.

Mr. DAVIS. I do not know, with $7 million of your cost charged off against the power, on page 399.

Mr. DEXHEIMER. That $7 million we do not anticipate to spend at the present time, until we can show a better feasibility for that portion of the canal and the powerplant that would be charged to power.

Mr. DAVIS. A pretty good part of that $7 million apparently is for this Milburn diversion works, and so forth. You plan to charge a good portion of that within the $7 million, I would assume.

Mr. DEXHEIMER. If the powerplant facilities were built, there would be an allocation in the diversion to power, yes.

Mr. DAVIS. Rather than prolong this discussion, will you give us a breakdown of the development of your figures on that?

Mr. WALTER. Yes, sir.

Mr. RILEY. I wonder if we could have a breakdown leaving out the Lillian Canal and powerplant, if that is going to be deferred?

Mr. DAVIS. I think that would be included in the figures I asked for.

(The matter referred to is as follows:)

The following information reflects a revised benefit-cost ratio for the Sargent unit with Lillian power features withdrawn from the unit. The remaining facilities are primarily irrigation, with minor benefits noted for flood control and fish and wildlife.

Single purpose irrigation project

Annual benefits:	
Irrigation	$465,100
Power	0
Fish & Wildlife	—600
Flood control	7,100
Total annual benefits	471,600
Investment:	
Estimated construction cost	9,536,000
Interest during construction	376,000
Total public investment	9,912,000
Annual costs:	
Equivalent public investment	270,700
Operation, maintenance, and replacement	46,000
Total annual costs	316,700
Benefit-cost ratio	1.49:1

TRANSMISSION DIVISION

Mr. RILEY. The next project is the Transmission Division, Missouri River Basin project. You expect to obligate $16,480,000 in 1956. Without objection, we will insert pages 407 through 413 in the record at this point.

(The matter referred to follows:)

Missouri River Basin Project—Transmission Division

Estimate for construction and rehabilitation

Summarized financial data

Estimated total obligations		$312,705,895
Total obligations to June 30, 1954		69,498,201
Allotment, fiscal year 1955	$12,325,000	
Prior year balance available	155,897	
Total obligations, fiscal year 1955		12,480,897
Allotment, fiscal year 1956	$16,480,000	
Total obligations, fiscal year 1956		16,480,000
Balance to complete		214,246,797

Work proposed, fiscal year 1956

East River, S. Dak. 115-kilovolt transmission loop and substations ($1,203,000).—Construction will be completed on the 8.3-mile Gavins Point Tap-Gavins Point transmission line which will provide an outlet for power from the Gavins Point powerplant to the East River loop. Construction will be completed for the 115-kilovolt bay addition to the Sioux Falls substation for 115-kilovolt service to the L. & O. Power Cooperative. This 115-kilovolt service will replace the present 69-kilovolt temporary service the cooperative is receiving at Sioux Falls substation. Initial construction will be completed for the 230-kilovolt addition to the Watertown substation to provide an interconnection with the Fort Thompson (Big Ben)-Watertown-Granite Falls 230-kilovolt transmission line. Construction will be completed for the 110/69-kilovolt addition to the Groton substation. Construction will continue for the Yankton substation with major supply and construction contract earning to accure during fiscal year 1956.

Oahe-Midland-Rapid City 115-kilovolt lines and substations ($186,575).—Construction will be completed for the Pierre substation which will then provide electric service to the cities of Pierre and Fort Pierre and to the Central Electric Association. Invitations will be issued and supply and construction contracts awarded for completion of a 25.2-kilovolt bay addition to the Rapid City substation.

Fort Randall-Winner 115-kilovolt transmission line and substations ($4,000).—Installation of a control board at Winner substation will be completed which will provide service to Cherry-Todd REA.

Garrison-Oahe-Fort Randall 230-kilovolt transmission lines and substations ($35,000).—Miscellaneous inspection and cleanup work will be completed. Force account work will be required in connection with conversion of the Fort Randall-Oahe transmission line from 115-kilovolt to 230-kilovolt operation and initial energization of the Oahe temporary substation and the Oahe-Mobridge transmission line at 230 kilovolts from the Fort Randall and Garrison powerplants.

Fort Randall-Sioux City 230-kilovolt transmission line and substation ($64,000).—Miscellaneous inspection and cleanup work will be completed. Force account work will be required in connection with energization of these facilities from Fort Randall powerplant.

Big Bend-Watertown-Granite Falls 230-kilovolt transmission line and substations ($5,125,000).—The program provides for completion of construction and energization of the section of line between Fort Thompson (Big Bend) substation and Watertown substation, including facilities for tapping the Fort Randall-Oahe 230-kilovolt line at the site of the future Fort Thompson (Big Bend) substation to meet the 1955–56 winter peak load on the East River loop. Substantial contract earning will result from contracts for furnishing steel towers and constructing footings and erecting towers on the section of line from Watertown to Granite Falls substation. Specifications will be issued and contracts awarded for constructing footings and erecting towers for the 3½-mile tie line from Granite Falls substation to the Northern States Power Co. substation. A contract will be awarded for stringing overhead ground wire and conductors from Watertown substation to Northern States Power Co. substation. Construction and miscellaneous equipment contracts for the Granite Falls substation will be awarded and substantial contract earning will mature on these and major supply contracts awarded during fiscal year 1955.

Central North Dakota 230-kilovolt, 115-kilovolt, and 69-kilovolt transmission line and substations (*$65,692*).—Provides for permanently connecting the Bismarck-Jamestown line to the Jamestown substation; completing the Garrison-Voltaire extension into Garrison switchyard; preparing designs, awarding contracts, and constructing stage 2 of Devils Lake substation to provide delivery to an REA cooperative; completion of line-terminal facilities in Edgeley substation; and dismantling the temporary Garrison-Fort Peck tie.

Jamestown-Fargo 230-kilovolt transmission lines and substations (*$3,315,988*).—Progress payments will be continued under contracts for Jamestown-Fargo 230-kilovolt line, Fargo substation and Jamestown substation additions, which will be completed within the year.

Edgeley-Groton 115-kilowatt transmission line and substation (*$1,189,200*).—Progress payments will be continued under contracts for the Edgeley-Groton 115-kilovolt transmission line and the Ellendale substation which will be completed within the year.

Grand Forks-Fargo 115-kilovolt transmission line and substation (*$1,040,000*).—Construction, materials, and equipment contracts will be awarded for this feature and the initial capacity installation at Grand Forks substation. These facilities will deliver power to Minnkota Power Cooperative, municipal systems in the vicinity of Grand Forks, and the Northern States Power Co. Distribution facilities of the cooperative and private utility will further distribute power by wheeling to wholesale customers.

Canyon Ferry-East Henena transmission line and substation.—All work will be completed in fiscal year 1955.

Alcova-Boysen-Lovell-Garland 115-kilowatt and 69-kilowatt transmission lines and substations (*$416,568*).—Lovell delivery for Mountain States Power Co. and construction of basin substation will be completed. This will complete all work under this program item.

Tap lines, substations, equipment for REA and other customers (*$405,989*).—Contract payments will be made for equipment and construction of North Cody, Ralston, and Cody substations. Revenue metering equipment will be acquired and installed where wheeling of Missouri River Basin power will be inaugurated to new customers. Two 5,000 kilovolt-ampere shunt reactors will be acquired for installation on the East River 115-kilovolt system. Additional equipment will be acquired for Heart Mountain switchyard and Hamilton Dome substation to provide additional deliveries.

Gering-Sterling 115-kilovolt transmission line and substations.—Bridgport substation, 3,750 kilovolt-ampere capacity, was constructed during fiscal year 1955. The transmission line and Sidney substation were completed prior to fiscal year 1955.

Sidney-Ogallala 115-kilovolt transmission line and substations (*$58,000*).—This amount will provide for electrical equipment and construction of additions to Ogallala substation ($50,000) and Julesburg rural substation ($8,000). Completion of these additions will extend into fiscal year 1957. All other features of this circuit are complete and in service.

Gering-Chadron 115-kilovolt transmission line and substations (*$6,000*).—This amount will provide designs and specifications for additions to Chadron substation with construction scheduled in fiscal year 1957. Additions to Alliance substation will be completed during fiscal year 1955, and the transmission line was completed and in service prior to fiscal year 1954.

Alcova-Gering 115-kilovolt transmission line and related substations (*$1,774,155*).—This amount will provide continuation of construction of the transmission line (contract to be awarded March 1955) ($1,475,000), and Lingle tap line, 7 miles of 115-kilovolt construction ($75,000). Also covered by the above amount will be initiation of construction on last 4 bays of Alcova switchyard ($99,155), and Lingle substation, 15,000 kilovolt-amperes ($125,000). These four features scheduled for completion during fiscal year 1957.

Casper Gering 115-kilovolt transmission line and substations (*$175,000*).—Construction will continue and progress payments will be paid on installation of a synchronous condenser with related equipment and cooling system at Gering substation ($150,000). Preparation of designs and specifications and initiation of construction by contract on Guernsey substation additions will be accomplished with ($25,000). The permanent Glendo substation will be the only construction remaining in this circuit after fiscal year 1957.

Glendo-Lusk 69-kilovolt transmission line and substation.—All features in this circuit will be complete and in service by the close of fiscal year 1955.

Alcova-Fremont 115-kilovolt transmission line (double circuit) ($50,000).—Initiation of construction of the double-circuit line (7.5 miles) in fiscal year 1956 is necessary to furnish power for construction of Fremont Canyon powerplant (Glendo unit) in May 1957.

Imperial metering station.—Complete in fiscal year 1955. No work required.

Fort Randall-O'Neill 115-kilovolt transmission line and substation.—Complete in fiscal year 1955. No funds required.

Fort Randall-Neligh 115-kilovolt transmission line and substation ($940,000).—Field data will be completed early in the fiscal year. Specifications for the prime contracts for both the transmission line and the switching station will be issued and awards made soon after the middle of the fiscal year. Purchase of the switching station equipment will be largely completed during the fiscal year.

Gavins Point-Belden 115-kilovolt transmission line and substation ($30,000).—Funds requested will be needed for final payment for the oil circuit breaker and minor contractual work to complete the switching station during the first quarter of the fiscal year.

Nebraska and northwestern Iowa metering equipment ($61,537).—Purchase and installation of metering equipment for the Northwest Iowa Coorperative and Iowa municipalities will continue and be completed at the end of the fiscal year. Purchase and installation of the necessary metering equipment for Nebraska municipalities will be initiated and completed during the fiscal year.

Other transmission lines and facilities.—No funds required. All work completed or deferred for future years. Includes estimated requirements for years beyond fiscal year 1956 as the need develops.

General property ($478,230.)—For completion of permanent warehouse, garage, and storage building at Pierre and Sioux City. Initiation of construction af a warehouse at Grand Forks. Purchase and installation of radio communication, carrier current, and telemetering equipment. This general property is all required for the permanent operation of completed lines and substations.

Schedule of construction program, fiscal years 1955 and 1956, Missouri River Basin project, transmission division

Program item	Estimated total	Total to June 30, 1954	Program, current year 1955	Program, budget year 1956	Balance to complete
(1)	(2)	(3)	(4)	(5)	(6)
CONSTRUCTION PROGRAM					
East River, S. Dak., 115-kilovolt loop and substations	$16,111,000	$10,597,541	$690,710	$1,203,000	$3,619,749
Oahe-Midland-Rapid City, 115-kilovolt line and substations	5,783,000	3,826,932	305,320	186,575	1,464,173
Fort Randall-Winner, 115-kilovolt line and substations	1,366,000	1,361,380	620	4,000	----------
Garrison-Oahe-Fort Randall, 230-kilovolt line and substations	20,559,200	16,286,026	1,065,918	35,000	3,172,256
Fort Randall-Sioux City, 230-kilovolt line and substations	15,666,000	6,139,525	1,768,650	64,000	7,693,825
Big Bend-Watertown-Granite Falls, 230-kilovolt line and substations	20,656,000	549,638	3,657,677	5,125,000	11,323,685
Central North Dakota, 230-kilovolt, 115-kilovolt, and 69-kilovolt line and substations	12,261,600	11,952,954	206,054	65,692	36,900
Jamestown-Fargo, 230-kilovolt line and substations	6,494,000	538,012	2,640,000	3,315,988	----------
Edgeley-Groton, 115-kilovolt line and substations	1,490,000	800	300,000	1,189,200	----------
Grand Forks-Fargo, 115-kilovolt line and substations	2,132,000	----------	----------	1,040,000	1,092,000
Canyon Ferry-East Helena line and substations	372,400	356,158	4,242	----------	12,000
Alcova-Boysen-Lovell-Garland, 115-kilovolt and 69-kilovolt lines and substations	4,329,030	3,604,287	308,175	416,568	----------
Tap lines, substations, equipment for REA and other customers	3,305,745	811,059	87,373	405,989	2,001,324
Gering-Sterling, 115-kilovolt line and substation	1,809,112	1,701,866	107,246	----------	----------
Sidney-Ogallala, 115-kilovolt line and substation	1,476,146	1,095,871	----------	58,000	322,275
Gering-Chadron, 115-kilovolt line and substations	1,620,420	1,510,420	27,000	6,000	77,000
Alcova-Gering, 115-kilovolt line and substations	3,790,000	532,792	292,000	1,774,155	1,191,053
Gasper-Gering, 115-kilovolt line and substations	5,084,523	2,911,458	900,000	175,000	1,098,065
Glendo-Lusk, 69-kilovolt line and substations	481,037	372,224	108,813	----------	----------
Alcova-Fremont, 115-kilovolt (2 circuit)	309,000	----------	----------	50,000	259,000
Imperial metering station	1,800	----------	1,800	----------	----------
Fort Randall-O'Neill, 115-kilovolt line and substation	554,000	451,217	102,783	----------	----------
Fort Randall-Neligh, 115-kilovolt line and substation	1,375,000	668	----------	940,000	434,332
Gavins Point-Belden, 115-kilovolt line and Belden substation	552,000	4,824	517,176	30,000	----------
Nebraska and northwestern Iowa metering equipment	166,200	6,207	98,456	61,537	----------
Transmission lines and facilities	181,062,090	2,235,032	----------	----------	178,827,058
General property	4,475,001	1,612,355	474,067	478,230	1,910,349
Total construction cost	313,282,304	68,459,246	13,664,080	16,623,934	214,535,044
Transfers, credits and other expenditures	−576,409	472,678	−778,111	12,727	−283,703
Total expenditures	312,705,895	68,931,924	12,885,969	16,636,661	214,251,341
Unliquidated obligations	----------	566,277	−405,072	−156,661	−4,544
Total obligations	312,705,895	69,498,201	12,480,897	16,480,000	214,246,797
Method of financing:					
Allotment, fiscal year 1955	----------	----------	12,325,000	----------	----------
Prior year balance available	----------	----------	155,897	----------	----------
Allotment required	----------	----------	----------	16,480,000	214,246,800

NEW CONSTRUCTION

Mr. RILEY. Is there any opposition from any of the private companies, REA's, or other interests to any of the lines which you propose to construct with this money?

Mr. DEXHEIMER. I do not believe there is any opposition at all to the ones we are proposing in this budget; no, sir.

Mr. RILEY. There are no lines there now that would contract to wheel the power?

Mr. DEXHEIMER. We are doing that wherever we can and have reciprocal arrangements with the other utilities to wheel power for them, or to have them wheel our power. But essentially, most of our transmission lines are hooking up the various powerplants in the basin and tying them, by higher voltage lines, to the principal load centers. Then the REA's and the utilities come to those load centers to get their power and distribute it.

Mr. RILEY. I wonder if you can point out to the committee the lines it is proposed to be constructed in 1956.

Mr. DEXHEIMER. The ones that are marked in blue are the ones we are working on and propose to continue construction on, and the ones marked in red are the essential new starts that we would begin in fiscal 1956.

Mr. RILEY. I believe there are three new ones. Can you point those out and tell us briefly why they are necessary?

Mr. CLINTON. The new one in North Dakota is the Fargo-Grand Forks line. That is to carry power from our Fargo station now under construction up to Grand Forks, N. Dak., in order to make an outlet for this area around Grand Forks, as the cooperatives and the present private utilities are ready to take it at the new substations.

The other line is that red line extending from Fort Randall Dam and powerhouse down to Neligh, Nebr., and that is to carry Missouri River power down to the load center in Nebraska.

The third one is a power line from Alcova powerplant to the proposed Fremont Canyon Dam which will be used intially to bring construction power in to build the Fremont Canyon Dam and, after it is completed and the powerplant is completed, it will carry the output with the powerplant out.

Mr. RILEY. You will have the same kilowatt capacity coming out or going in?

Mr. CLINTON. Either way, sir.

GENERATION SCHEDULES

Mr. RILEY. Has there been any change or is there any contemplated change in the initial generation dates for units on the main stem of the Missouri River which could affect the transmission schedules?

Mr. CLINTON. The only one I know of is on the starting of the Garrison powerplant. The original scheduled date for starting the first unit at Garrison was June of this year. I understand that the corps is doubtful of that now, because of the drought this year and the low runoff. They may not have enough water to start the first unit until later in the summer or fall. But I am not aware of any official change in their date yet.

Mr. RILEY. Does that change your schedule in any way?

Mr. CLINTON. No, sir; it will not. We have a very tight schedule even to keep on the Jamestown-Fargo line and completion of the substation. We had planned to be ready by June. There have been some delays in design and construction of the substation, because of changes in facilities that the private utilities wanted put in there, so it has delayed us some. But we are trying to keep it on schedule. So it looks like we will come out even on the transmission facilities and be ready to move all of the power into eastern North Dakota about the time the Garrison unit is ready to operate.

Mr. RILEY. You do not think there will be any delay one way or the other in the completion of the construction project?

Mr. CLINTON. No, sir.

FARGO TO GRAND FORKS

Mr. RILEY. What about the line from Fargo to Grand Forks? Who are your customers there?

Mr. CLINTON. We have both kinds of customers there. There will be six so-called preference customers—that is, co-ops or municipalities—that will take firm power from that substation. In addition, we will sell secondary power through that facility to two private utilities; that is, the Otter Tail Power Co. and the Northern States Power Co.

Mr. RILEY. So that there is no way for the private company to pick up that additional power at Fargo if they do not have any lines going in there?

Mr. CLINTON. They do not have any lines heavy enough. They do not have any 115-kilovolt lines between those two points at the present time. Their distribution systems are at a lower voltage.

Mr. RILEY. At Grand Forks, I suppose that is municipal?

Mr. CLINTON. Yes, it is.

Mr. RILEY. Does it get its power from you?

Mr. CLINTON. It will also get power deliveries wheeled from our Grand Forks substation.

FORT RANDALL TO NELIGH

Mr. RILEY. What about the line from Fort Randall into Neligh?

Mr. CLINTON. I am not familiar with that.

Mr. DEXHEIMER. That line is to interconnect with the Nebraska Public Power System and to furnish additional power that they need in Nebraska from the system and from Fort Randall Dam and powerplant particularly.

We have, as you notice, other points of delivery into Nebraska where they come and get the power and do their distribution from there.

Mr. RILEY. Are there other powerlines in the Missouri Valley grid that go into Neligh?

Mr. DEXHEIMER. No, sir; not into Neligh. Into Nebraska at several other points, however. The power is delivered to the Nebraska Public Power System, a preference body that handles most of the power in Nebraska.

Mr. DOMINY. That map does not show the lines of the Nebraska system.

Mr. DEXHEIMER. No; these are only the delivery points to that system.

Mr. RILEY. If you built a heavier line at this time, would that eliminate the necessity for building other lines later?

Mr. DEXHEIMER. A heavier line from Fort Randall into Neligh?

Mr. RILEY. Into Nebraska out of Fort Randall. I understand this is 115 kilovolt is that right?

Mr. DEXHEIMER. Yes, sir. There is a possibility, and the Nebraska people have asked us to build a 230-volt line; but, because of the delivery schedule and the amount of allocations available, and so forth, the Interior Department felt that 115 would be all that we could justify at the present time.

Mr. RILEY. I was interested to know whether or not if you put a heavier line there would that probably eliminate the necessity for building another lighter line later on, or reconstructing this line? If you have the demand for power, you might as well anticipate it a little bit, had you not?

Mr. DEXHEIMER. We have the demand I think in Nebraska if we could foresee the time when we would have the power available for them. As I said, the Nebraska people have asked us to build a 230-kilovolt line, but the question is how much power we have to allocate and how much we would be justified in delivering to Nebraska from the system.

Mr. RILEY. Fort Randall is not going to develop enough power to take care of the needs for the next few years?

Mr. DEXHEIMER. Our entire Missouri Basin system will be very short of power to meet the needs in that area unless there is considerable change in the amount of power we are to develop. We have put most of our customers on notice that we will not be able to supply their full needs, and we have gone through a process in the last year of asking all of our preference customers how much power they anticipate they will need over a period of time. Based on those estimates, we are having to notify other customers that we will need to withdraw power from them in order to furnish it to preference customers in the very near future. By no means will we be able to supply the demand in full in the Missouri Basin, based on our presently estimated production.

Mr. RILEY. And that is taking into consideration the whole development of Oahe, Fort Randall, Garrison, Fort Peck, and all of them?

Mr. DEXHEIMER. Yes, sir; with all those that are authorized, and those that we anticipate we might be able to build, we still will be way short of power to meet the needs of the customers in that area.

Mr. RILEY. And you think this 115-kilovolt line will transmit all of the power you can spare to that particular point?

Mr. DEXHEIMER. For the present, at least.

Mr. RILEY. How long do you project your estimates on these lines; how far in the future do you project your estimates on the use of power or the transportation of power on these lines?

Mr. DEXHEIMER. Our recent studies have been based on the requirements for 1956 and 1958, and then estimates for the future. We have every indication that we will be way short of power to meet the needs in 1958 and, of course, we are not able to make a very accurate estimate of the power production and timing of that production from the Oahe Dam at this time.

Mr. RILEY. But if your estimates are based only through 1958, we are really building that line just for 2 or 3 years based on the present

power output. Now if you increase the power output in some manner, you will probably have to go back and rebuild that line; won't you?

Mr. DEXHEIMER. You are speaking of the Fort Randall-Neligh line?

Mr. RILEY. Yes.

Mr. DEXHEIMER. No, sir. It would be a question of whether we could allocate power. The lines we are proposing will be loaded to their full capacity, we anticipate, as soon as they are built. And if we should get more power production available, we would need it to meet the other customers' demands. There would not be, in the near future, sufficient power to justify the additional line into Nebraska. It is not a question of whether we can sell the power if we build a heavier line; I do not think there is any question but what we could support the 230-kilovolt line into Neligh and sell the power; but it is a question of how we can properly allocate the power that we do have available. And the Interior Department has determined on the basis of those allocations that we should not build over a 115-kilovolt line into that area.

Mr. RILEY. It is a question in my mind as to whether or not we are transporting this power to the point of greatest demand.

Mr. DEXHEIMER. Yes, sir; that is what we are trying to do, based on first serving those preference customers which by law we are required to give the first choice too, for the power that they can use.

Mr. RILEY. Well do you take into consideration power that is developed by the private utilities and the availability as to where we distribute this power, or do you go in and compete with them?

Mr. DEXHEIMER. Generally speaking, I think we determine the loads and the load growth based on the Federal Power Commission's estimates and then we have a choice, you might say, in the initial building of transmission facilities. First we must hook up the powerplants that are in the system so that we can make the maximum use of the available water and then, secondly, to take it to certain areas where there is a demand for the load and where we can sell the power at prices which will pay out, and also serve those preference customers who are entitled to preference in the use of the power. Of course we have, in conjunction with that, a considerable amount of irrigation pumping load in the Missouri Basin that is entitled to first consideration. That power, of course, is generally furnished at cost without interest.

Mr. RILEY. I want to be sure that the power is being transmitted into those areas that are shortest of power and have the biggest demand and, of course, where it is feasible to have the transmission line.

Mr. DEXHEIMER. That is correct. We are limited sometimes in delivering to those areas of shortage, and that have a great demand, on the basis that it would not be economically justified for us to transmit power in the amounts required, or for the distance that might be required.

NEBRASKA PUBLIC POWER SYSTEM

Mr. MAGNUSON. Does the Nebraska Public Power System qualify as a preference customer of this station?

Mr. DEXHEIMER. Yes, sir.

Mr. MAGNUSON. You have no choice, then, really?

Mr. DEXHEIMER. It is one of the preference customers, of which we have a great many, and we try to treat them all alike as far as allocations to meet their needs. In nearly every case they have requested much more power than we could furnish; so we have to reduce each one proportionately.

Mr. MAGNUSON. Is that done strictly on a pro rata basis?

Mr. DEXHEIMER. Not entirely. As pointed out, it is done to some extent on the basis of whether or not we could be justified in building a transmission line to serve them, and the amount of power they might need, and so forth.

Mr. MAGNUSON. State lines mean nothing between preference customers, do they?

Mr. DEXHEIMER. No; except as to distance from the generating plant.

Mr. MAGNUSON. All of your firm power is going to preference customers, did I understand?

Mr. DEXHEIMER. I think that is correct. In this area of the Missouri Basin; yes, sir.

Mr. MAGNUSON. Under the present program, you will have spent in the neighborhood of $100 million at the end of the next fiscal year on this project, or $98 million plus.

Mr. CLINTON. It will be about $98 million at the end of fiscal year 1956.

Mr. MAGNUSON. Which is something less than 30 percent of the contemplated expenditure.

Mr. CLINTON. That is correct.

Mr. MAGNUSON. And the remaining $214 million in transmission facilities is contingent on bringing in many more power installations, I take it?

Mr. CLINTON. Yes; and also further additions to substations for more customers.

ESTIMATED COMPLETION DATE

Mr. MAGNUSON. In this situation, do you have any idea of a completion date? There are so many factors, including the whims of the Appropriations Committee, that it is hard to estimate?

Mr. CLINTON. It should level off in the mid sixties because the Oahe power plant is the last large powerplant to come in, and it will be completed, as I recall, in 1962. There will be a few minor additions to tributary plants from then on.

Mr. MAGNUSON. But largely by the mid sixties you will have sufficient power to justify the full expenditure of the $312 million, roughly, for transmission facilities?

Mr. CLINTON. That is what it looks like. As you know, the forecasting of which transmission lines are to be built is pretty difficult. We are looking ahead here about 10 years.

POWER RATES

Mr. MAGNUSON. Is firm power selling at 5.5 mills?

Mr. CLINTON. Yes, sir.

Mr. MAGNUSON. Do you have any estimate of the ultimate price?

Mr. CLINTON. No, sir; no more than what Assistant Secretary Aandahl said the other day, that he did not anticipate that the rate would be raised appreciably.

Mr. MAGNUSON. It might be decreased?

Mr. DEXHEIMER. It is not likely to be decreased.

The addition of these works will be a little more expensive due to rising costs and the fact that the cheaper producing units are generally built first. So that it is more apt to increase. The increase, of course, of a mill or a fraction of a mill would make considerable difference in the revenues.

Mr. MAGNUSON. Are the private utilities you mentioned of substantial size?

Mr. CLINTON. Yes, they are. The Northern States Power Co. is what I would call one of the large power companies of the country.

DEMAND FOR POWER

Mr. MAGNUSON. I cannot understand, without knowing more about the area, why they need so much more power. Is there a great industrial development going on?

Mr. CLINTON. No, sir. There is an extensive rural electrification and there has been a much heavier use per capita of power in the last 10 years or so since there has been rural electrification in that country.

Mr. MAGNUSON. It is largely domestic use?

Mr. CLINTON. Yes, sir. I do not know of any heavy industries, Mr. Magnuson, similar to what you have in the Northwest.

FARGO TO GRAND FORKS LINE

Mr. DAVIS. I understood there is an existing private line up there that does not have sufficient capacity, from Fargo up to Grand Forks. Is that right?

Mr. CLINTON. There is a 69 kilovolt distribution system in that area, Mr. Davis.

Mr. DAVIS. I am wondering what arrangement, in a case like that, is made. Your general policy, which I think is pretty well accepted, is that where there is an existing facility it shall not be, shall we say, pushed out of the picture, or whatever it might be. What opportunity do you give an existing utility to do the job that has to be done there before you step in? In effect, I suppose this practically makes that 69 kilovolt system obsolete and puts it out of business, does it not?

Mr. CLINTON. No, sir, it does not. The 69 kilovolts would parallel this distribution line. That is very commonly done. The transmission line will parallel a 69 kilovolt distribution line.

I think we can say generally at all of these delivery points, the three major ones, are the Fargo substation, Grand Forks, and Sioux City substations, we encourage the cooperatives and utilities to come to those stations and take delivery of as much as possible there and many of them are doing that. But in this case they were not willing to go to that expenditure in the Fargo area, to extend a major line down there.

Mr. DEXHEIMER. I think generally that the question of competing transmission lines can be summed up in this way: No private utility would build any transmission facilities that they do not have practically a full use for. They could not justify it to their stockholders

or to their board of directors and, therefore, there is no capacity available for additional transmission over their facilities. And none of those REA groups or cooperatives are adequately financed to do it unless they can get the money through some source and are willing to bond themselves to build those transmission facilities, which we try to get them to do if they are the major customers. In this case, as Mr. Clinton said, they did not see their way clear to do it; so that they have asked us to build the main line to get into the area which they serve. Of course, they are then committed through their loans and other methods of financing to build the distribution system to get it from these main substations out to their customers.

Mr. DAVIS. They are serving both distribution and transmission at the present time, are they?

Mr. DEXHEIMER. Many of them are.

Mr. DAVIS. I mean in this particular instance?

Mr. DEXHEIMER. Yes, sir; that is correct.

Mr. DAVIS. Then some of the service they are now rendering will be displaced and does that leave them overconstructed as far as their purpose to serve solely as a distribution line is concerned?

Mr. CLINTON. No, sir.

Mr. DEXHEIMER. This is only to meet additional loads. None of their loads will be displaced; none of their facilities will be useless or put out of use in any way. This is only additional service and methods of getting additional power that is available to the place where they can adequately finance and distribute it.

I might point out that we anticipate in 1958 having a total amount of power in that area of 625,000 kilowatts and we have requests from preference customers for that same date of 959,000 kilowatts. So, even with all of this additional building, we are about 30 percent behind the demand. They will have to supply themselves to meet that demand from some other source.

Mr. DAVIS. How significant was this term you used a minute ago when you said that some of them were willing and some were not willing to come to a particular point and get power? In this case, they were not willing to do it, so the Government is doing it. What do you mean by "willing" and "not willing"?

Mr. DEXHEIMER. For example, if you have a group of REA's which are organized and can levy assessments, and so forth, and can borrow money either through the Government or through private financing, they have a limitation on the amount of bonded indebtedness they can have under their State laws, of course, and they have a limited ability, therefore, to borrow money or to get it from the REA. If they find they are just unable to finance the construction of a heavy line for some distance, they ask us to do it. They usually think all they can stand to finance is their distribution system and then buy the power after that.

Now, we have in many of the areas of the country arrangements with private utilities for using their lines where they put up the money to build lines and they carry power to our customers and to their own.

Mr. DAVIS. What kind of arrangements do we make for getting our investment back in a case like this?

Mr. DEXHEIMER. It is included in the power rate, and that power investment is repaid with interest.

Mr. DAVIS. Now, coming down to this other one from Fort Randall down, just looking at that map, now, why are we coming directly down rather than tying up at the place designated as O'Neill on that map?

Mr. DEXHEIMER. We have a line already constructed there, a 115-kilovolt line to O'Neill.

Mr. DAVIS. Why are we not making use of the one going further down to Neligh?

Mr. DEXHEIMER. It is completely loaded with the present load that we are delivering into the Nebraska system. This one [indicating] takes it down further into the State and they will tie up to that point and distribute the power.

Mr. DAVIS. What is the rationale of our building a line into a State like Nebraska where they are all tied up in a State public utility, in effect? They, to a certain extent, have preempted the field, I would say, which then raises the question that they are a thoroughly developed and coordinated customer, so it is up to them to come and get it. Why can we not say that to them?

Mr. DEXHEIMER. You will notice that we have delivered to a great many places throughout the whole Missouri Basin. Each one of those little triangles there on the map indicates a delivery point. It is just a question of building that line to meet their distribution loads taking it by as short a line as possible to connect in with their system which is normally at a much lower voltage than ours, and a large part of that power would be used for irrigation pumping in the general vicinity of Neligh.

Mr. DAVIS. Well, what I am saying is why should Federal funds do this rather than Nebraska State funds?

Mr. DEXHEIMER. Well, the Nebraska people have requested it, and I think they maintain that they were unable to do it under their financing, but that has been subject to some debate.

Mr. RILEY. Could I ask a question there, Mr. Davis?

Mr. DAVIS. Yes.

Mr. RILEY. Is it cheaper to get new rights-of-way and build a new line than it would be to rebuild the line down to O'Neill, and then to extend it?

Mr. DEXHEIMER. I think the answer to your question is "Yes," that it is cheaper to build a new line than it would be to try to increase the capacity of an existing line because you have the difference between a 115-kilovolt line and a 230-kilovolt line. In the case of the higher voltage line you must get it up higher above the ground with wider spacing of wiring, and so forth, and it would not be practicable. Besides that, of course, you would have to take your existing line out of service for the time you were replacing it, if you tried to replace the same line with another one. Your loss in power revenue alone from that would be a very substantial amount.

Mr. MAGNUSON. Will you yield, Mr. Chairman?

Mr. RILEY. Yes.

Mr. MAGNUSON. Pursuing Mr. Davis' line of questioning of a moment ago, would you explain to me your obligation to the Nebraska system, since they are a preference customer?

Mr. DEXHEIMER. Our obligation is essentially the same to Nebraska as a preference customer as it might be to any other preference customer.

We have asked all of those customers in the general area for their power requirements by 1958 and by 1960, and as I pointed out, they asked that we contract with them for a total of some 959,000 kilowatts. We have available, or we will have available in 1958, only 625,000 kilowatts. So, we have had to allocate that power that we will have available among those preference customers on the basis of their requirements and on the basis of our ability to meet the loads in the particular area by those dates. Therefore, they have all been reduced from what they actually asked for and anticipate that they will need.

Mr. PHILLIPS. Will you yield for a question, Mr. Magnuson?

Mr. MAGNUSON. Yes.

Mr. PHILLIPS. When you say Nebraska, do you mean Nebraska as a State or the Nebraska Power Co.?

Mr. MAGNUSON. The public-power system of Nebraska.

Mr. PHILLIPS. It is State-owned?

Mr. MAGNUSON. I believe so.

Mr. DEXHEIMER. Yes.

Mr. MAGNUSON. The Bureau apparently has a substantial amount of discretion. You could turn down a preference customer if he were so remotely located geographically that it was not practical to serve him?

Mr. DEXHEIMER. Yes; that is correct, and we have had to do that at times.

Mr. MAGNUSON. Conceivably you could decide that it was not feasible to furnish your power to the Nebraska outlets?

Mr. DEXHEIMER. Yes, sir; but I do not think that it would be expedient for us to do so.

Mr. MAGNUSON. I am not suggesting that you should. I am getting an education on this.

I think that is all, Mr. Chairman.

Mr. PHILLIPS. Mr. Dexheimer, I just came in when you were saying that Nebraska was not required to pay something because they felt that they could not pay. Does not that raise a peculiar situation? Nebraska has no State debt. In other words, this is on the well-known axiom that to him that hath shall be given?

Mr. DEXHEIMER. No, sir, we do not allocate our power on the basis of the prosperity of the customer, but on the basis of his request for power and our ability to serve that customer.

Mr. PHILLIPS. I may have misunderstood. I thought you meant in the extension of the transmission lines that the Federal Government was building them in Nebraska because Nebraska's law, which prohibits State debt, made it impossible for them to build them themselves. Was I wrong in that, Mr. Dexheimer?

Mr. DEXHEIMER. Yes, sir; you were wrong in that assumption, as I understand it. We are building these transmission facilities to a minimum extent to serve the preference customers in the general area, and we try, whenever possible, to have those customers come as far as they can to get the power and to distribute it themselves. We only tie our powerplants together so that the system can be operated as a unit, and then build the transmission lines to those general load cen-

ters from which the customers then must build distribution systems and distribute the power.

Mr. PHILLIPS. Well, do I understand, then, that you offered this power to Nebraska to the State line and that they said they would not take it there, that you have to bring it farther into the State; is that right?

Mr. DEXHEIMER. No, sir; I do not believe that is the case.

Mr. PHILLIPS. I would interpret that to be your policy from the statement you just made, that you try to get them to come as far as you can which, I would assume, in the case of Nebraska, would be the State line. Why do you not do that?

Mr. DEXHEIMER. The Nebraska people asked us to build a 230-kilovolt line even farther into Nebraska to meet their load centers.

Mr. PHILLIPS. This is rather interesting to us. Nebraska pays no Federal taxes, is that right? That is, they pay individual taxes, but they do not pay on any of these other things. What obligations do you have to carry this into what amounts to the heart of Nebraska at Federal expense?

Mr. DEXHEIMER. I believe the obligation is just the same as it would be in the case of all of these other points. You notice that every little triangle in that area on the map is a point at which we have a substation to distribute power to customers who come to those substations for it.

POWER COMMITMENTS

Mr. PHILLIPS. In order to save time, will you put in the record at this point what power commitments or allocations you have already made of power from what we speak about as the main stem which Mr. Davis and some of the rest of us seem to think you are putting a very heavy drain on. Also, what allocations you have made to Nebraska, Iowa, North and South Dakota, and Minnesota in that area, the allocations by years until the completion of the installation of those plants? Will you do that for me?

Mr. DEXHEIMER. I do not believe we could give it to you that way, Mr. Phillips.

Mr. PHILLIPS. Can you do it by years?

Mr. DEXHEIMER. We have made just recently a request of all of our preference customers in the area for their requirements.

Mr. PHILLIPS. You must have made some calculations. Will you give me those? You have certainly estimated commitments or you would not know how much power you need.

Mr. DEXHEIMER. Yes, sir; I was pointing out to you that we asked them for their requirements. As I have stated we have made allocations of power based on those requirements, having to reduce them because we have not that much power available.

Mr. PHILLIPS. Will you put those in the record at this point?

Mr. DEXHEIMER. But they will not be by States. They will be by customers rather than by State, Mr. Phillips.

Mr. PHILLIPS. If you have that already, and it does not require any additional work to put that in, I would like to have it.

Mr. DEXHEIMER. Yes, sir; I shall be glad to do that.

Mr. RILEY. Mr. Phillips, will you yield?

Mr. PHILLIPS. Yes, certainly, Mr. Chairman.

Mr. RILEY. Could you show in this statement the States in which the customers are located?

Mr. DEXHEIMER. Yes, sir; we could do that, but I would like to point out in connection with this Fort Randall to Belden line that Congress has directed us to build that line rather than one just over the State line to deliver power into Nebraska.

Mr. PHILLIPS. I said to Mr. Clinton yesterday that I thought in the case of a great many of these things that we were talking about it was Congress' responsibility and not the Bureau's.

(The matter referred to follows:)

State of customers in Nebraska, Iowa, North and South Dakota and Minnesota to which power has been allotted and amount of power for each

NEBRASKA

Municipalities:	*Kilowatts of power allotment*
Auburn	1,100
Blair	1,200
Broken Bow	1,200
Fairbury	2,800
Fremont	6,000
Pender	500
Schuyler	1,200
Wakefield	400
Wayne	1,200
West Point	900
Wilbur	400
DeWitt	300
Power districts:	
Nebraska Public Power System	100,000
Subtotal, Nebraska	117,200

IOWA

Municipalities:	
Denison	1,800
Harlan	1,900
Hawarden	1,000
Laurens	700
Manilla	350
Manning	800
Mapleton	500
Onawa	2,000
Primghar	500
Remsen	500
Rock Rapids	1,500
Sanborn	400
Sioux Center	600
Cooperatives:	
Cherokee County	3,800
Harrison County	4,000
Ida County	3,900
Lyon	3,300
Monona	3,380
Nishnabotna	6,715
O'Brien County	3,450
Osceola Electric	1,750
Plymouth Electric	5,810
Sioux Electric	5,280
South Crawford	5,240
Woodbury County	3,970
Subtotal, Iowa	63,145

NORTH DAKOTA

Municipalities:	*Kilowatts of power allotment*
Cavalier	1,000
Grafton	2,735
New England	750
Park River	900
Valley City	2,500
Cooperatives:	
Capital	1,150
James Valley	1,610
KEM	3,550
McKenzie	2,560
Minnkota	25,000
Mor-Gran-Sou	4,990
Oliver-Mercer	2,000
Slope	3,525
West Plains	5,030
State:	
State of North Dakota	8,975
Subtotal, North Dakota	66,275

SOUTH DAKOTA

Municipalities:	
Aberdeen	550
Arlington	900
Badger	250
Beresford	800
Big Stone City	325
Brookings	3,000
Bryant	400
Burke	550
Flandreau	1,800
Fort Pierre	700
Groton	700
Hecla	220
Howard	750
Langford	175
Madison	3,550
Miller	1,100
Onida	475
Parker	750
Pierre	4,970
Plankinton	550
Sioux Falls	4,000
Vermillion	2,400
Volga	600
Watertown	7,000
Winner	2,000

State of customers in Nebraska, Iowa, North and South Dakota, and Minnesota to which power has been allotted and amount of power for each—Continued

SOUTH DAKOTA—continued

	Kilowatts of power allotment
Cooperatives:	
Beadle	2,630
Bon Homme-Yankton	2,590
Cam-Wal	2,400
Central	1,200
Charles Mix	1,500
Cherry Todd	2,200
Clay Union	3,110
Codington-Clark	3,150
Douglas	1,040
FEM	2,700
Grand	3,090
H-D	3,000
Intercounty	3,860
Kingsbury	1,130
Lake Region	3,090
Lincoln-Union	4,480
McCook	2,030
Moreau-Grand	2,330
Northern	4,100
Ree	1,450
Rosebud	4,000
Rushmore G and T	11,960
Sioux Valley Empire	11,480
Spink	1,650
Traverse Electric	1,000
Tri-County	2,240
Turner Hutchinson	5,520
Union County	1,190
Whetstone	2,880
State: State of South Dakota	10,000
Federal:	
Ellsworth Air Base	10,000
Black Hills Ordnance Depot	3,200
Subtotal, South Dakota	154,715

MINNESOTA

	Kilowatts of power allotment
Municipalities:	
Detroit Lakes	1,000
Fosston	1,200

MINNESOTA—continued

	Kilowatts of power allotment
Municipalities—Con.	
Hawley	275
Moorhead	14,000
Thief River Falls	4,100
Wadena	2,250
Alexandria	2,500
Benson	1,200
Granite Falls	1,380
Hardwick	200
Jackson	300
Litchfield	2,400
Luverne	500
Madison	900
Marshall	1,100
Olivia	700
Ortonville	900
Redwood Falls	2,100
Sauk Center	1,200
St. James	1,100
Tyler	400
Cooperatives:	
Border Counties	225
Itasca-Mantrap	615
Lake Region	12,900
Minnkota	25,000
Todd-Wadena	4,500
Brown County	2,300
Central Minnesota	2,000
Federated Rural	4,200
Lyon-Lincoln	2,300
McLeod	1,000
Meeker	2,500
Minnesota Valley	5,200
Nobles	3,800
Renville-Sibley	1,900
Runestone	3,400
Rural Cooperative Power Association	2,500
South Central	3,300
Southwestern Minnesota	4,800
Stearns	3,300
Traverse Electric	1,400
Western Minnesota	3,800
Subtotal, Minnesota	130,645

Total, Nebraska, Iowa, North Dakota, South Dakota, Minnesota, 531,980 kilowatts.

FARGO TO GRAND FORKS

Mr. PHILLIPS. Looking at that red line at the top of the map there, apparently the extension of that line up there is based on the fact that you feel that there are additional customers there but, as I understood you, you have already exhausted your potential power from the nearby sources. So, what justification is there for building additional lines to serve customers for whom you would not have power?

Mr. DEXHEIMER. We are not, Mr. Phillips. That line is to serve customers which we anticipate we will have power for as soon as the

units go on the line from the main-stem dams. We need to get these transmission facilities built in order to serve customers and to be able to sell and deliver that power to them when we are ready to generate power.

Mr. PHILLIPS. Mr. Chairman, as you know, I do not want to take up your time on this, but every time we come to one of these projects the answer comes back always that we are talking about power here which we do not have and that we are having a deficit here, and we are dependent on the main-stem plants for power.

I think it is very essential that we have a recalculation of the amount of power that we figure can be developed from these main-stem plants, especially when the calculations were apparently not made in the same manner by the corps as by the Bureau.

I have no more questions now.

Mr. DEXHEIMER. I just want to point out, Mr. Phillips, that we did exactly what you are talking about. We anticipated that there would not be enough power to go around, and we have asked our preference customers in the area for their needs, and we have made just recently an allocation to the various preference customers to correspond with the amount of power that we will have available in the future.

Mr. PHILLIPS. How do you connect that statement with the extension of the line up there from Grand Forks to Fargo?

Mr. DEXHEIMER. The Fargo-Grand Forks line?

Mr. PHILLIPS. If you say now you have not enough power and that you are asking your preference customers how much they will need, how do you justify asking this committee for additional money to build an extension there for more power than you have or than you expect to have?

Mr. DEXHEIMER. That will be for delivering power which we anticipate will be available in the future from the plants now under construction and which are expected to be on the line. We have to look a long ways ahead, of course, in planning and constructing these facilities and in allocating the power, and we have done that. In this coordinated system we will be able, by the construction of this line, to deliver power to those customers in the Grand Forks area.

Mr. PHILLIPS. Mr. Chairman, is that clear to you? In one breath the Bureau is asking its preference customers just how much power they will need so that they will be sure that they will have it because they are a little fearful that they have overdrawn on the main-stem plants, and in the next breath they are extending lines up to Grand Forks, to deliver additional current to the people up there, out of the main-stem plants. Maybe what we get from them in the way of this analysis will show that, but it is not very clear to me at the moment.

Mr. DEXHEIMER. I think, Mr. Phillips, you are misunderstanding the statement. We are projecting our loads based on the generation that we will have, and the amount of power that we will have available to sell. We have asked all of our preference customers in the area to give us their projected needs. Now we have a definite plan for bringing the power units on to the line, building the transmission facilities to the load centers, and with all of this, we will still not be able to deliver to these preference customers all of the power that they would like to have.

Mr. PHILLIPS. Then, supposing you do not build that line, do you not think you will still have more demands for power than you can supply?

Mr. CLINTON. I would like to answer that question, as I accompanied Assistant Secretary Aandahl during a week of that trying trip out there a year ago in an effort to distribute the 625,000 kilowatts that Mr. Dexheimer has mentioned.

Mr. PHILLIPS. That is, in the whole grid, 625,000 kilowatts?

Mr. CLINTON. Yes, sir. That is the estimate of the amount available in 1958 in the eastern division, and we had on our hands at the time applications from preference customers for over 950,000 kilowatts. So, he had the problem of trying to divide up that power among all of the areas, and the preference customers in an area which benefit from that power.

We got information on the availability of power and the feasibility of extending these transmission lines and systems, and all of those factors were taken into account, and an allocation was made to each of those customers on that basis. Some of them were given 100 percent of their requests, and some of them were cut back to 50 percent of their requests.

It just happens that on this Grand Forks line the Minnkota Power Co-op, which is the major preference customer in that area, was allocated around 100 million kilowatt-hours a year of firm power. So, the transmission line up there is necessary to get to them their share of the available power. That is not all they wanted. They were very unhappy that they did not get more.

Mr. PHILLIPS. How do you spell that Minnkota?

Mr. CLINTON. M-i-n-n-k-o-t-a.

Mr. PHILLIPS. Just offhand I would suggest that 100 million kilowatts out of 625 million is a fairly large proportion of the available power that is being drawn from what we call the main-stem plants making up all of these units.

Mr. DEXHEIMER. That is 100 million kilowatt-hours per year, Mr. Phillips, not 100,000 kilowatts.

Mr. PHILLIPS. That makes a lot of difference.

Mr. CROSTHWAIT. Yes, sir; it does.

Mr. MAGNUSON. Will you yield, Mr. Phillips?

Mr. PHILLIPS. I have finished.

ALLOCATION OF AVAILABLE POWER

Mr. MAGNUSON. I suppose if you had one preference customer right up against the source of the power, say, 1 mile away, and you had other preference customers scattered out at varying ranges around the source of power that you would not feel just because that closest customer could use all of the power that you should deliver all of the power to that nearest customer, would you?

Mr. DEXHEIMER. Normally we would not feel that way, although it would be financially the best way to do it. Even if we did feel that way, I do not believe Congress would agree that we could do it that way.

Mr. MAGNUSON. I do not think so either.

Mr. DEXHEIMER. Therefore, we have to put it into this system for distribution in the general area of the power available from these projects.

Mr. MAGNUSON. Is not the answer to Mr. Phillips' general line of questioning this, that you feel you have an obligation to deliver some power to a certain area, or to preference customers within a certain area, and that is why you give less power to some of your closer customers than they want, in order to give some service to those customers farther away?

Mr. DEXHEIMER. Yes, sir; that is correct.

We feel that we more or less have a directive from Congress to make power available to certain areas. The Department has requested the preference customers in that general area to supply us with their requirements and anticipated needs by 1958, and to some extent for later years, and then we allocate the power on the basis of the power that we had available. We think that we have done it as equitably as it is possible to do it.

Mr. MAGNUSON. I am through, Mr. Chairman.

WEBSTER UNIT, KANSAS

Mr. RILEY. Well, the next unit is the Webster unit in Kansas. Without objection, we will insert the project data on page 419 of the justifications in the record at this point.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, WEBSTER UNIT

Date of planning: 1941
Date of advance planning: 1952.
Date of authorization: Flood Control Act of Dec. 22, 1944.
Original cost estimate (1944): $7,800,000.
Date of reauthorization: None.
Estimated cost of start of construction (1952): $21,167,000.
Present cost estimate: $18,069,000.
Date construction started: 1952.
Estimated date of functional completion: Fiscal year 1960.
Remarks: Increase in cost estimate from $7,800,000 (1944) to $18,069,000 (1955) was due to:

General price level change	$6,189,000
Change in project plan	2,594,000
Inadequacy of estimate	1,389,000
Other	97,000

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Estimated total obligations		$17,842,404
Total obligations to June 30, 1954		4,364,500
Allotment, fiscal year 1955	$5,000,000	
Total obligations, fiscal year 1955		5,000,000
Allotment, fiscal year 1956	$3,500,000	
Total obligations, fiscal year 1956		3,500,000
Balance to complete		4,977,904

Work proposed, fiscal year 1956

Webster Dam and Reservoir (*$3,472,840*).—Construction will continue and progress payments will be made under a prime contract awarded in November 1952. Completion of the prime contract and essential completion of all supporting work is programed for fiscal year 1956.

Diversion dam, canal, laterals, and drains (*$110,000*).—Field data will be completed and work started on plans and specifications during fiscal year 1956.

General service equipment.—No program until fiscal year 1957.

Cooperative development (*$10,000*).—During fiscal year 1956 work will consist of summer fallowing, site preparation, initial planting, and fencing.

STATUS OF PROJECT

Mr. RILEY. If I read this justification correctly, the funds that are asked for this year, the sum of $3,500,000, will substantially complete the Webster Dam and Reservoir; is that right.

Mr. DEXHEIMER. That is correct; yes, sir.

Mr. RILEY. What is the capacity of this reservoir?

Mr. WALTER. The capacity of Webster Reservoir is about 271,700 acre-feet.

Mr. RILEY. There is no power here?

Mr. WALTER. No, sir; there is no power connected with it.

Mr. RILEY. Mr. Phillips?

AUTHORIZATION

Mr. PHILLIPS. In all of the preceding projects, even those where there was a general authorization, the Bureau apparently followed the custom of giving a citation of what the authorization was, but in the last two I notice we did not even get any statement of authorization.

Am I right about that, Mr. Clinton? I did not find any for that last project, and I do not find any for Webster.

Mr. CROSTHWAIT. Mr. Phillips, none of the so-called units for the Missouri Basin contain that authorization. At the beginning of our testimony we filed for the record a general statement of the authorizations for all of the units in the Missouri Basin.

Mr. RILEY. This project helps flood control on the Missouri River, does it?

Mr. WALTER. Yes, sir.

COSTS

Mr. PHILLIPS. I do have a question before we pass the Webster unit completely.

On page 417 of the justifications my attention was attracted to the cost of the Federal investment per acre. That looks awfully high to me, $1,070 per acre for Federal investment, of which $911 is taken from power, the favorite source, which is excess power on the main stem. Do you not think the Bureau should put something in the record to indicate why we run up to $1,070 per acre investment on the Webster project?

Mr. DEXHEIMER. This, sir, of course, is because of the necessity to build a separate diversion dam and canals and laterals and drains, and a share of the reservoir in the irrigation allocation.

Some of these units are farther away from the source of the water and need special works, and others are closer and do not need all of those additional facilities.

Mr. PHILLIPS. You observe that only $159 is being paid by the water users, while $911 is being paid from power revenues.

Mr. DEXHEIMER. Yes, sir.

Mr. PHILLIPS. I also observe that the originally estimated cost of the unit was $7,800,000, and at the present the estimated cost is $18,069,000.

Mr. DEXHEIMER. There, again, of course, the original estimate was made some years ago on the basis of inadequate field data and no final design estimates. They were made at a time when costs were considerably lower than they are today.

Mr. PHILLIPS. Well, now, wait a minute. That is all right as a general statement, but the advance planning was in 1952. How much increase has there been since 1952? The planning was in 1941, and the advance planning in 1952, and construction began in 1952. That is 3 years ago. Do you think that costs have increased 2½ times in 3 or 4 years?

Mr. DEXHEIMER. No, sir. The original cost of $7,800,000 was based on prices in 1940, and was included in the original Missouri Basin Act of 1944 before any work had been done. The costs for materials have increased since 1940.

Mr. PHILLIPS. That is pretty close to the dollar value then and now.

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

Mr. RILEY. We go now to the drainage and minor construction program of the Missouri River Basin project.

Without objection, we will include pages 422 through 428 of the justifications in the record at this point.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, DRAINAGE AND MINOR CONSTRUCTION PROGRAM

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Allotment, fiscal year 1955	$330,000
Prior year balance available	493,258
Balance available in subsequent years	−22,000
Total obligations, fiscal year 1955	801,258
Allotment, fiscal year 1956	500,000
Prior year balance available	22,000
Total obligations, fiscal year 1956	522,000

DESCRIPTION

The drainage and minor construction program consist of those units on which all major construction has been completed, except facilities which are temporarily deferred, or on which small amount of funds are programed in the budget year. The programed amounts provide for drainage work, minor repair or replacement work, miscellaneous finishing activities, or preconstruction work on the temporarily deferred facilities.

REPAYMENT

The entire cost of the comprehensive project that is properly allocable to irrigation, commercial power, and municipal water will be repaid in accordance with reclamation law. Costs properly allocable to flood control, navigation, and fish and wildlife are nonreimbursable. Costs allocated to irrigation and in excess of the water users ability to repay, will be repaid from power revenues.

WORK PROPOSED, FISCAL YEAR 1956

The fiscal year 1956 program involves work on eight units and the preparation of completion reports and as-built drawings. Four units will be inactive during fiscal year 1956.

DETAIL OF WORK PROPOSED, FISCAL YEAR 1956, UNITS WITH FISCAL YEAR 1956

Angostura unit, South Dakota ($156,500)

Description.—The Angostura unit is located in the southwest corner of South Dakota on the Cheyenne River in Custer and Fall River Counties. A full water supply will be provided for 12,154 acres of semi-arid lands and the power plant has a capacity of 1,200 kilowatts. Construction of the main features is complete except for the drainage system and the recreation facilities.

Work proposed, fiscal year, 1956.—Puddling, priming, and testing of canal and laterals on Angostura unit will continue during the first half of fiscal year 1956. On January 1, 1956, it is anticipated that the irrigation facilities will be completed to the extent that water service will be assured to virtually all the irrigable lands. Additional bentonite membrane canal lining will be placed in reaches of the canals and laterals where seepage is endangering the irrigable lands. Construction of deep drains will be continued to protect badly seeped areas which have developed more rapidly and extensively than was anticipated when the project was constructed. Cultivation of trees and shrubs in wildlife habitat will continue on a minimum basis.

Boysen unit, Wyoming ($147,500)

Description.—This unit consisting of Boysen Dam and Reservoir, 15,000-kilowatt powerplant and appurtenant features, is located on the Bighorn River, in Fremont County, in central Wyoming about 20 miles upstream from Thermopolis, Wyo. All work is complete except for deferred construction on the relocation of the railroad and repair of the slide area on the access road.

Work proposed, fiscal year 1956.—The contract with the Chicago, Burlington & Quincy Railway Co. which permitted relocation of its tracks requires that the Bureau perform all maintenance for a period of 5 years after the Boysen Reservoir was filled. The program for fiscal year 1956 provides for the performance of such maintenance on the relocated railroad which may be required as provided for in the relocation contract.

Cedar Bluff unit, Kansas ($40,000)

The Cedar Bluff unit is located in west central Kansas in Trego and Ellis Counties. The unit now provides flood control and will provide for the irrigation of 11,300 acres of land. In addition, exchange flood-control storage in Cedar Bluff Reservoir for irrigation storage in the downstream, existing Kanopolis Reservoir will provide for irrigation of an additional 41,000 acres below Kanopolis Dam in Ellsworth, McPherson, and Saline Counties, Kans. Cedar Bluff Dam and Reservoir are in operation and preconstruction work is underway on the irrigation facilities.

Work proposed, fiscal year 1956.—During fiscal year 1956 collection of fied design data will be completed, and preparation of plans and specifications initiated on the Cedar Bluff Canal and laterals.

Crow Creek unit, Montana ($22,500)

Description.—The Crow Creek unit is located south of Crow Creek near its confluence with the Missouri River and the town of Toston, in southwestern Montana. This unit was constructed to provide irrigated lands to replace those inundated by the Canyon Ferry Reservoir. All features of the unit are completed to serve 5,020 acres with the exception of drains. Failure of local residents to form a water users organization continues to delay the placing of the units in the operating status. Efforts to form an organization are continuing. During fiscal year 1955 organization of the owners of nonexcess lands is in prospect.

Work proposed, fiscal year 1956.—The program for fiscal year 1956 provides for priming, puddling, and testing of canals and laterals as well as work on farm unit development. Funds are also provided to cover the operation and maintenance of completed irrigation facilities.

Fort Clark unit, North Dakota ($10,000)

Description.—The Fort Clark unit, located on the right bank of the Missouri River in Mercer County in west-central North Dakota, is one of 15 separate

units of the North Dakota pumping division located along the Missouri River from Williston to the North Dakota-South Dakota State line. Water is delivered to the lands of the unit by pumping from the Missouri River with electrically driven pumps. The main plant pumps water to land at two elevations; the lower land lies about 30 feet above the river and the remainder about 75 feet above. Two relift pumping plants, in addition to a system of canals and laterals, serve a total of 2,100 acres.

Work proposed, fiscal year 1956.—Technical assistance will continue to be furnished to farmers for adapting operations to irrigation farming. Minor construction items will be completed and the remaining operation and maintenance equipment will be acquired. The program also provides funds to cover the operation and maintenance of the irrigation facilities.

Jamestown unit, North Dakota ($57,000)

Description.—The Jamestown unit is located on the James River in Foster and Stutsman Counties in east-central North Dakota. Jamestown Dam is about one-fourth mile north of Jamestown and the reservoir extends about 40 miles upstream from that city. It provides much-needed flood control for Jamestown and other cities and farmland in North and South Dakota. It will impound return irrigation flows from areas of the proposed Garrison diversion unit for diversion to irrigable lands along the James River and the Oakes area. The dam was so constructed that future connections can be made to provide municipal water supply for Jamestown.

Work proposed, fiscal year 1956.—Funds are provided for the initial construction of drain wells downstream from the dam.

St. Francis unit, Colorado-Kansas ($50,000)

Description.—The St. Francis unit is located in eastern Colorado in Yuma County, near Hale. Principal features are Bonny Dam, which was completed in 1951, and Bonny Reservoir with a capacity of 170,000 acre-feet. Since 1951 it has been serving in a flood-control capacity and has also been furnishing supplemental water to approximately 750 acres of irrigated lands under an old privately owned canal. Ultimate plans for the unit include a pumping plant, canal, and laterals to serve 6,000 acres of tablelands in eastern Colorado.

Work proposed fiscal year 1956.—These funds will cover design data compilation for fiscal year 1956 for future additions to outlet works, which would be required by the new plan of development set forth in the May 1954 definite plan report, as well as design data compilation for Armel pumping plant, canal, and laterals.

Shadehill unit, South Dakota ($17,000)

Description.—The Shadehill unit is located in northwestern South Dakota in Perkins and Carson Counties, at the confluence of the north and south forks of the Grand River. This multipurpose unit is planned for flood protection, silt control for the Grand River, and a source of municipal water for the city of Lemmon, S. Dak. The dam and reservoir are complete and the construction of the municipal water facilities is scheduled subsequent to fiscal year 1957.

Work proposed, fiscal year 1956.—Procurement of right-of-way for the reservoir area will be completed. Maintenance of the wildlife sites will be continued through contract with the South Dakota Department of Game, Fish, and Parks. Operation of the Shadehill development farm with cooperating agencies will be continued.

Completion reports and as-built drawings ($21,500)

Description.—After a project or a feature of a project is complete and in an operating status, completion reports and as-built drawings are made by the office of the Assistant Commissioner and Chief Engineer in Denver for permanent records.

Work proposed, fiscal year 1956.—Funds are included for completion reports and as-built drawings for the Canyon Ferry, Boysen and Kortes Dams and powerplants.

UNITS INACTIVE IN FISCAL YEAR 1956

The Canyon Ferry, Dickinson, Keyhole, and Savage units will be inactive during fiscal year 1956. The first three have fiscal year 1955 programs.

Mr. RILEY. You are asking $522,000. $22,000 of it is available from previous years. So, you are only asking for $500,000 additional in 1956.

I believe that there are eight projects in that drainage and minor construction program, are there not?

Mr. CLINTON. I will count them, sir.

Mr. RILEY. I may have missed some of them.

Mr. CLINTON. That is correct, Mr. Chairman, there are eight.

Mr. RILEY. This also involves the preparation of completion reports and as-built drawings?

Mr. DEXHEIMER. Yes, sir.

ANGOSTURA UNIT, SOUTH DAKOTA

Mr. RILEY. Are there any recreational facilities being built in connection with the Angostura unit?

Mr. CLINTON. Yes, sir; in the ultimate development of the unit.

Mr. RILEY. How long has this project been in the minor completion stage?

Mr. CLINTON. The major construction was finished last year, and we are putting the finishing touches on it.

Mr. RILEY. What about your recreational facilities; are you building any recreational facilities here?

Mr. CLINTON. There is a minimum of facilities that the Park Service and the South Dakota Fish and Game Commission felt were necessary to take care of the people who were coming there to the reservoir for fishing.

Mr. RILEY. Are those authorized under the authorization bills?

Mr. CLINTON. Yes, sir, we feel that they were, although we have held them to the minimum.

Mr. RILEY. Can you give us the source of the authorization on that, I mean the law? You can insert it for the record.

Mr. CLINTON. I cannot quote it offhand, Mr. Chairman. I will have to furnish it for the record.

(The matter referred to follows:)

BUREAU OF RECLAMATION, CONSTRUCTION AND REHABILITATION

RECREATIONAL FACILITIES—MISSOURI RIVER BASIN PROJECT

Legislation authorizing the construction of the Missouri River Basin project by the Bureau of Reclamation does not specifically provide for the construction of recreational facilities, and recreational facilities as such have not been constructed by the Bureau, except as they relate to control of sanitation and public safety. Annual appropriation acts have specified that appropriations to the Bureau of Reclamation shall be available for studies of recreational uses of reservoir area, and the annual programs of the Bureau of Reclamation have indicated such studies when appropriate.

Senate Document 191, 78th Congress, 2d session, which presents the Bureau of Reclamation's plan for the development of the Missouri River Basin briefly discusses the recreational facilities, present and potential, in the basin, with special reference to the recreational opportunities which will be provided through the construction of the numerous proposed reservoirs. The National Park Service, as part of its basic function, has prepared recreational plans in connection with many of the present and proposed reservoirs in the Missouri River Basin. Funds for such planning activities have been obtained from appropriations to the Bureau of Reclamation under the authority to plan for reservoir recreational use. Where National Park Service plans have been developed to the point of a reasonably firm estimate, they are included in the

total estimated cost of the appropriate Missouri River Basin project unit, but are shown in future years since they are dependent on additional authorization and appropriations.

The Bureau of Reclamation has certain public responsibilities in connection with the reservoirs constructed by it. The development of large bodies of water in areas which have been deficient in natural boating and fishing facilities, naturally attract large groups of visitors. Under its basic responsibility as constructing agency, the Bureau of Reclamation has, where necessary, constructed minimum sanitation and safety facilities. These facilities consist largely of public toilets, refuse-disposal facilities, and protective fencing to prevent pollution of the reservoir and danger to the visiting public Appropriations for such facilities have been clearly identified in the presentations to the Budget Bureau and the Congress.

The policy of the Bureau is to encourage the development of recreational facilities adjacent to its reservoirs by State and local agencies. This policy is bearing fruit and several reservoir areas have been turned over for operation of recreational facilities to non-Federal agencies. Negotiations for similar agreements on other reservoirs are in progress. Where Reclamation reservoirs fall largely within national forests, as in the case of Pactola Dam on the Rapid Valley unit, the adjacent area is administered by the Forest Service. The Bureau proposes to continue this policy, and it is expected that recreational facilities at the majority of the reservoirs in the Missouri River Basin will eventually be operated under agreement with State or local agencies.

CROW CREEK UNIT, MONTANA

Mr. RILEY. Another one of these minor units is the Crow Creek unit, Montana. How long has this been in the minor completion stage?

Mr. CLINTON. The major construction was finished last year, Mr. Chairman.

Mr. RILEY. Has a water users' district been formed?

Mr. CLINTON. No, sir; it has not.

Mr. RILEY. What is the status of that?

Mr. CLINTON. They are in the process now of forming an irrigation district, and we have told them that we will not operate the irrigation system until they do form a district to comply with the requirements of the reclamation law.

Mr. RILEY. I understand now that it is the policy not to go ahead with work unless a water users' district has been formed?

Mr. CLINTON. That is true, Mr. Chairman. In the case of this one we were directed by the Congress to build it as a replacement for lands flooded out by the Canyon Ferry Reservoir.

FORT CLARK UNIT

Mr. RILEY. Now, we have another one, the Fort Clark unit. I ask the same question that I previously asked, how long has this project been in the minor completion stage?

Mr. CLINTON. Last year was the last year of major construction, Mr. Chairman.

Mr. RILEY. Has this been turned over to the water users for maintenance?

Mr. CLINTON. No, sir; it has not yet. We will operate it this year, and their repayment contract will go into effect next January.

Mr. RILEY. And they will take care of the maintenance and operation of it from that point on?

Mr. CLINTON. Yes, sir; we hope by a year from now that we will be able to turn it over to the district for operation and maintenance.

Mr. PHILLIPS. Which one is that?

Mr. CLINTON. The Fort Clark unit.

Mr. RILEY. Now, what about the Shadehill unit? Give me the status of that as to when it will be completed, and whether or not the water users have completed their organization.

Mr. CLINTON. The Shadehill Dam and Reservoir has been completed. The money that we are asking for this year is to get additional right-of-way for the reservoir and the spillway, and to continue the operation of the Shadehill development farm with the cooperating agencies in the State.

Mr. PHILLIPS. I have a question about Shadehill. You said that the dam has been completed.

Mr. CLINTON. Yes, sir; it has, Mr. Phillips.

Mr. PHILLIPS. How long ago?

Mr. CLINTON. It was either 1 or 2 years ago—2 years ago, I believe.

Mr. PHILLIPS. Am I correct in the assumption that you have several dams in this particular basin that have been constructed anywhere from 2 to 5 years ago and which are not yet used for irrigation? Would they be Bonnie, Shadehill, and Cedar Bluff?

Mr. CLINTON. Yes, sir. They were started back in 1948 under the second supplemental appropriation given by the Congress.

Mr. PHILLIPS. Are there any others in that category?

Mr. CLINTON. I will have to look.

Mr. PHILLIPS. What I am trying to get on the record is the reason for not using them and if there is any possibility of using them, or if they have to be written off as bad debts.

Mr. CLINTON. We have not put anything in the budget for starting the irrigation part of this project.

Mr. PHILLIPS. Are you actually going to use the water out of Shadehill?

Mr. CLINTON. We have a quality of water problem there to see whether that water can be used satisfactorily for the purpose of irrigation. That is the reason we are operating the development farm at the present time.

Mr. PHILLIPS. Is it not a fact that the water out at Shadehill is saline water, and you cannot use it on agricultural land?

Mr. CLINTON. We are not sure whether we can or not.

Mr. PHILLIPS. And was not that fact known at the time you started building the reservoir there?

Mr. CLINTON. No, I do not think that it was, at least not the seriousness of it.

Mr. PHILLIPS. I have here the investigator's report. I do not have anything in that about Shadehill, at least I do not think I have.

While there seems to be a difference of opinion on that point, the chances at the moment are reasonably good that we will have to write Shadehill off as a loss.

Mr. CLINTON. It has flood-control value.

Mr. PHILLIPS. How full is it?

Mr. CLINTON. I do not have that flood-control allocation with me, Mr. Phillips.

Mr. PHILLIPS. Have you had a flood there since it was built?

Mr. CLINTON. We had a serious flood in 1952, Mr. Phillips, and the reservoir prevented considerable damage at that time.

Mr. DEXHEIMER. We think, Mr. Phillips, that you will find that this one and several of the others that have flood control benefits have, within a few years after they were built, saved as much in flood damage, almost, as the cost of the works. If they are not used for irrigation they still will be amply justified on the basis of flood protection alone.

TUESDAY, MAY 3, 1955.

PROJECT INVESTIGATIONS

Mr. RILEY. We will continue with the justifications of the Missouri River Basin project. Without objection, we will insert pages 431 and 432 in the record at this point.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT INVESTIGATIONS

Summarized financial data

Appropriation, fiscal year 1955	$2,049,150
Prior year balance available	488,544
Total obligations, fiscal year 1955	2,537,694
Allotment, fiscal year 1956	2,500,000
Total obligations, fiscal year 1956	2,500,000

Description

Advance planning investigations of the Missouri River Basin are made to develop definite plans for individual units of the Missouri River Basin project which are being made ready for construction. These investigations include repayment negotiations and other negotiations with local interests, detailed surveys, and preparation of definite plans and final designs for initial construction features and other preconstruction work which must be undertaken before the unit is ready for the initiation of actual construction.

At the same time basin surveys of the several subbasins or divisions of the Missouri River Basin are being made for continuation of the development of the comprehensive basin plan.

The activities of the Interior Missouri Basin Field Committee also are financed with Missouri River Basin investigations funds.

Status

Advance planning.—In fiscal year 1954 advance planning studies were in progress on 20 units including 6 units for which the advance planning was completed, and 5 of the latter are included in the fiscal year 1955 construction program. The sixth, Yellowtail unit, is scheduled for start of construction in fiscal year 1957. In fiscal year 1955 advance planning studies are in progress on only 14 units, including 3 for which the studies are being initiated and 2 scheduled for completion.

Basin surveys.—In fiscal year 1954 work was in progress on 17 basin surveys of which one, namely, the Cannonball division, was completed. The report on this division shows that development of the potential units in the Cannonball River Basin is not feasible under present economic conditions. A draft of a report on the Niobrara River Basin in Nebraska, South Dakota, and Wyoming was completed. At the beginning of fiscal year 1955 the Congress authorized the inclusion of the Ainsworth, Lavaca Flats, Mirage Flats, and O'Neill units, in this basin in Nebraska, in the Missouri River Basin project.

The fiscal year 1955 program has been reduced to 12 active investigations of which one; namely, the Powder division in Montana and Wyoming is scheduled for completion. The fiscal year 1955 program includes by directive of the Congress initiation of the deferred investigations of the White division in South Dakota and investigations of the potential rehabilitation of the Willow Creek

Dam in South Dakota. A special report on Willow Creek will be completed by the end of fiscal year 1955.

Work proposed, fiscal year 1956

Advance planning.—The fiscal year 1956 program provides for preconstruction activities on 12 entities. This represents continuation of advance planning work on 10 units and start of advance planning work of 1 division and 1 unit.

LIST OF PROJECTS

Mr. RILEY. I should also appreciate having inserted in the record a list of the projects under investigation in 1956, showing the amounts programed for 1956 and the amount spent to date on each project.

(The matter referred to follows:)

Missouri River Basin project investigation program, fiscal year 1955–56

Program item	Total to June 30, 1954	Program		
		Fiscal year 1955	Fiscal year 1956 [1]	Balance to complete
Units under advance planning:				
Ainsworth unit (Sand Hills division), Nebraska	$641,983	$157,915	$180,000	
East Bench unit (Three Forks division), Montana	537,438	49,634	90,000	$250,000
Farwell unit (Middle Loup division), Nebraska	1,609,481	173,616	80,000	500,000
Garrison diversion unit (Missouri-Souris division), North and South Dakota	4,557,677	777,521	850,000	973,000
Hardin unit (Lower Bighorn division), Montana	361,549	76,650	150,000	150,000
Kanapolis unit (Smoky Hill division), Kansas	126,838		75,000	185,000
Lavaca Flats unit (upper Niobrara division), Nebraska	23,772	20,000	30,000	80,000
Moorhead unit (Powder division), Montana and Wyoming	1,587,892	1,000	1,000	490,108
Narrows unit (South Platte division), Colorado	945,391	50,917	50,000	120,000
Nickwall unit (Montana pumping division), Montana	92,535	3,000		
North Loup division, Nebraska	900,283		165,000	605,000
Oahe unit (James division), South Dakota	4,631,963	408,337	475,000	5,315,300
Owl Creek unit (Bighorn Basin division), Wyoming	752,240	15,000		
Sadie Flat unit (Yellowstone division), Montana	251,935	1,000		
Shoshone Extensions unit (Bighorn Basin division), Wyoming	1,452,590	25,000	25,000	
Wilson unit (Smoky Hill division), Kansas	230,370	20,000	2,000	140,000
Subtotal, advance planning	18,703,937	1,779,590	2,173,000	
Basin surveys:				
Bighorn Basin division, Wyoming	343,181	33,171	50,000	37,000
Clarks Fork division, Montana and Wyoming	634,296	20,000	10,000	
James division (unidentified areas), South Dakota		117,128	89,000	514,000
Kansas River Basin, Kans., Nebr., Colo	294,256	47,429	28,000	370,000
Lower Platte River Basin, Nebr	2,398,681	115,181	10,000	[3] 190,000
Niobrara River Basin, Nebr., Wyo., S. Dak	871,833	56,085	11,700	[3] 110,000
North Platte River Basin, Wyo., Nebr., Colo	1,029,959	95,167	95,000	150,000
Powder division, Wyoming and Montana	1,353,969	60,000		
South Dakota pumping division, South Dakota	138,079		50,000	150,000
South Platte River Basin, Colo., Wyo., Nebr	837,995	75,340	70,000	620,150
Sun-Teton division, Montana	258,943	11,366		232,000
Three Forks division, Montana	1,400,242	151,750	200,000	275,000
White division, South Dakota	307,605	30,000	50,000	15,000
Yellowstone division, Montana-North Dakota	1,382,772		25,000	270,000
Investigations, presently inactive units or division	2,671,706	37,000	5,000	35,000
Interior Missouri Basin Field Committee	702,630	50,000	50,000	[2]
Subtotal, basin surveys	14,626,147	899,617	743,700	
Total cost	33,330,084	2,679,207	2,916,700	
Unliquidated obligations, service facilities, stores, transfers, credits, and other expenditures		−141,513	−1,700	
Total obligations		2,537,694	2,915,000	

[1] Amounts based on an increase of $415,000 in original fiscal year 1956 request. Balance to complete for Basin Surveys includes only investigation costs through completion of basin report and does not include cost of units scheduled to become active in advance planning subsequent to fiscal year 1961.

[2] Includes only cost of basin surveys through fiscal year 1961. Data on total cost not available.

[3] Continuing activity and no estimate is available as to total future requirements.

BUDGET CHANGE

Mr. RILEY. I believe in a letter which was incorporated in the record yesterday you asked for an additional $415,000 under this item. Could you tell me what that was for and why the addition?

Mr. CLINTON. I can explain that, Mr. Chairman. We have distributed that amount on various investigations throughout the upper Missouri and main stem Missouri area. We have placed $100,000 of it on the Garrison diversion unit in North Dakota; we have placed $50,000 of it on the Hardin unit in Montana; $100,000 on the Oahe unit in South Dakota, and $165,000 on basin surveys. I believe those items make up the total of $415,000.

Mr. RILEY. Were these additional allocations the result of additional work, or a little more rapid investigation than you contemplated originally?

Mr. CLINTON. No; it was to keep our original investigation program on schedule. It does mean accelerating the rate that we could go with the amount allowed in the budget.

Mr. RILEY. I know these budgets are made up months in advance, and you find now, if I understand correctly, that you can go faster than you originally contemplated?

Mr. CLINTON. Yes, sir; we can.

YELLOWTAIL DAM AND HARDIN IRRIGATION UNIT

Mr. MAGNUSON. I am interested in Yellowtail Dam. I see the justifications mention that in 1954 you had advance planning concluded on 6 units, of which 5 were included in the 1955 construction program and the 1 left out being Yellowtail. Advanced planning is completed for Yellowtail, I understand.

Mr. CLINTON. Yes, sir; it is. We could let a construction contract, Mr. Magnuson, within 6 months after we got construction money.

Mr. MAGNUSON. Can you tell me what you have spent on planning investigations on Yellowtail, approximately?

Mr. CLINTON. Approximately $2.5 million.

Mr. MAGNUSON. Has the Bureau of Reclamation asked for construction funds for Yellowtail?

Mr. CLINTON. Yes, sir; we did.

Mr. MAGNUSON. And those requests have been turned down by the Bureau of the Budget?

Mr. CLINTON. That is correct.

Mr. MAGNUSON. Over how many years have you requested money for Yellowtail construction?

Mr. CLINTON. Every year since 1948.

Mr. MAGNUSON. How much did you request for 1956?

Mr. CLINTON. We requested $5 million.

Mr. MAGNUSON. What is the basis for the rejection by the Bureau of the Budget; do you know?

Mr. CLINTON. There were two reasons given by the Bureau of the Budget. First, they questioned the economic feasibility of the unit. They felt that further study should be given to it on that score. Second, they felt that the possibility of a partnership plan had not been fully or sufficiently explored as yet.

Mr. MAGNUSON. Have you computed the benefit-cost ratio on the project?

Mr. CLINTON. Yes, sir, we have.

Mr. MAGNUSON. What is that ratio?

Mr. CLINTON. I do not recall exactly, but it is better than 1 to 1. We have a favorable ratio.

Mr. MAGNUSON. Would you provide the exact benefit-cost ratio as estimated?

Mr. CLINTON. Yes, sir, I will.

Mr. MAGNUSON. Also, I wish you would provide for the record the concrete economic and financial justification for Yellowtail Dam and the Hardin irrigation unit, including power-marketing data and all relevant information.

Mr. CLINTON. Yes, sir; we can do that. That material was presented to the House and Senate Interior and Insular Affairs Committees during the past year.

Mr. MAGNUSON. And that committee adopted a resolution urging the programing of the project.

Mr. CLINTON. The House Interior and Insular Affairs Committee did; sir, a year ago.

(The matter referred to follows:)

POWER PRODUCTION, MARKETING AND PAYOUT, YELLOWTAIL UNIT

PLANT CAPACITY AND POWER PRODUCTION

In planning Yellowtail powerplant, it was recognized that an installation of about 130,000 kilowatts would probably be sufficient to assure the sale of the firm energy available. It was evident, however, that the Yellowtail plant, due to the high head available and the economic advantage of installing short penstocks, afforded an ideal site at which to install additional generating capacity to assist the integrated power system in the production of salable firm energy. Some of the energy produced by other prospective powerplants will not fit under the firm powerload curve of the integrated system and would necessarily be sold only for its offpeak energy value. The additional assured capability at Yellowtail permits the sale of much of this type of energy as firm power over the interconnected system. Studies made for 1960, 1965, and 1970 indicate that there will be ample offpeak system energy to completely utilize the peaking capacity at Yellowtail in the production of system firm power.

Design of the powerplant was based on operating the reservoir at sufficiently high levels to assure full peaking capacity from the powerplant at practically all times. Consideration of anticipated drawdown periods and their diversity with other reservoirs, together with probable excess capacity inherent in most turbines and generators, led to a decision that the powerplant machinery should be rated to produce the full 200,000 kilowatts only down to an operating head of 420 feet. Operation studies show that the head might be less than 420 feet only 3 times in a study period of 24 years, and the minimum head reached was 370 feet for a period of less than 1 month.

Initially, it is expected that the powerplant will produce about 875,200,000 kilowatt-hours annually, of which about 650 million kilowatt-hours will be firm energy. After ultimate upstream depletions for irrigation, estimated to be experienced about 50 years after initial generation, power production is estimated to be about 761 million kilowatt-hours annually, of which about 597 million kilowatt-hours will be firm energy. Average annual power production for the first 50 years of operations will therefore be about 818,100,000 kilowatt-hours, of which about 623,500,000 kilowatt-hours will be firm energy.

Since power produced at Yellowtail will be marketed on the interconnected projects power system, generation will be integrated with the energy produced at other powerplants. Deducting for average transmission losses, an annual average of 100,000 kilowatts and 438 million kilowatt-hours will be available for firm power sales, an annual average of 85,000 kilowatts and 74 million kilowatt-hours for integration with other system plants, 65 million kilowatt-hours for pumping, and 180 million kilowatt-hours for nonfirm sales. These estimates represent salable energy at loads on the integrated power system.

POWER MARKETING

The marketing area.—The principal area in which power produced at the Yellowtail powerplant will be marketed comprises northern Wyoming, Montana east of the Continental Divide, and portions of western and northwestern North Dakota, as shown on the attached map. By virtue of existing and proposed

interconnections between the major Bureau transmission systems it will also be possible to utilize Yellowtail power in augmenting power supplies in southern Wyoming and in the eastern portion of the Missouri River Basin.

Agriculture, mining, and industry are economic activities of the primary market area. In recent years the production, transportation, and refining of petroleum has assumed major proportions and its rapid expansion is continuing. Northern Wyoming has long been a substantial oil-producing area, and the Williston Basin, a large part of which is located within the market area for Yellowtail power, promises to become one of the major oil producers in the Nation.

A large variety of minerals occurs, chiefly in the mountainous portions of the West. Coal reserves, for the most part subbituminous, are distributed broadly over the area. Favorable sites for synthetic liquid fuel plants offer prospects for large powerloads. Natural gas reserves are substantial.

Power requirements and supply.—In analyzing the present and future power requirements and supply in the Yellowtail market area use was made of the report, Power Requirements and Supply, Missouri River Region, prepared by the Subcommittee on Electric Power of the Missouri Basin Interagency Committee. This report, published in May 1953, represents the coordinated efforts of representatives of investor-owned, municipal, public power, rural electric, and Federal utility systems, and is used as an impartial source of data in the ensuing presentation.

Present (1954) power requirements in the area, excluding exports, but including reserve requirements, are stated in the report as 559 megawatts. Adding export commitments of 60 megawatts, a total requirement of 619 megawatts results, which is somewhat in excess of the effective generating capability in the area, amounting to 565 megawatts. The deficit is presently met by imports of power from southern Wyoming and Colorado, and by reliance on power supplies in western Montana outside the marketing area. Generating capacity, except for the 66,000-kilowatt steamplant at Billings, Mont., is located around the periphery of the area and therefore is not easily integrated. Integration is further limited by lack of transmission interties between the power systems in Montana and Wyoming. The Yellowtail powerplant, by virtue of its central location and associated transmission lines would provide means of integrating the existing systems.

The estimated future power requirements of the Yellowtail market area, together with estimated generation, are shown in the following tabulation for the years 1960, 1965, and 1970. These requirements are based on a conservation load growth of 5 percent annually over the 17-year period, as estimated in the report. Commitments for export of power outside the marketing area are assumed to be 5 megawatts higher than at present.

This tabulation shows a need for additional power within the marketing area amounting to 138 megawatts in 1960, 264 megawatts in 1965, and 405 megawatts in 1970. On the above basis of power requirements, there should be a ready market for the output of at least 3 units of the Yellowtail powerplant by 1960 with the fourth unit required about 1 year later.

Estimated future power requirements of Yellowtail market area (data from Power Requirements and Supply, Missouri River Region, Missouri Basin Interagency Committee, May 1953)

	Megawatts			Megawatt-hours		
	1960	1965	1970	1960	1965	1970
Peak load of area	696	846	1,028	3,737	4,489	5,324
Export commitment	65	65	65	285	285	285
Reserve	57	58	59			
Load plus reserve	818	969	1,152	4,022	4,774	5,609
Generating capability other than Yellowtail:						
Non-Federal, hydro	245	245	245	1,491	1,491	1,491
Non-Federal, fuel	205	230	272	1,344	1,512	1,790
Federal, hydro	230	230	230	1,594	1,510	1,507
Total capability	680	705	747	4,429	4,513	4,788
Additional firm supply required	138	264	405	(407)	261	821

ALLOCATION OF COST

Inasmuch as Yellowtail is one unit of a comprehensive basin development, it is necessary to include costs of related transmission facilities to make the necessary allocations of costs and financial evaluations. These costs are summarized as follows:

Yellowtail unit	$95,721,000
Transmission division	24,494,000
Total construction cost	120,215,000

During the past decade various methods have been used in making allocations of cost. Several of these methods have been used on Yellowtail unit with varying results. During the past month the Department of the Interior prescribed the separable costs remaining benefits method as being preferable. This method is approved by the Federal Interagency River Basin Committee. In applying this method of allocations the following single-purpose alternatives were assumed:

Power.—A privately financed steamplant with a capacity of 180,000 kilowatts, located in the vicinity of Forsyth, Mont.

Irrigation.—A reservoir at the Yellowtail site with a total capacity of 550,000 acre-feet; 95,000 acre-feet of active capacity for irrigation and 455,000 acre-feet for silt accumulation.

Flood control.—A reservoir at the Yellowtail site with a total capacity of 955,000 acre-feet; 500,000 acre-feet for flood control and 455,000 acre-feet for silt accumulation.

Application of the separable costs remaining benefits method results in the following allocation of construction costs:

Irrigation	$26,552,000
Power [1]	67,203,000
Flood control	4,241,000
Recreation [2]	500,000
Total	98,496,000

[1] Includes $2,775,000 capital costs of Hardin pumping which would not have been required under a gravity diversion means of irrigation, and which are not a part of the Yellowtail unit cost estimate.
[2] Cost of facilities only.

Power allocation, Yellowtail unit	$67,203,000
Transmission division	24,494,000
Total	91,697,000

It is estimated that about 25 percent of the kilowatt installation of the Missouri River Basin project will be needed for irrigation pumping, the cost of which is noninterest bearing. Applying this factor, the following breakdown of power costs is obtained:

Interest bearing	$68,773,000
Noninterest bearing	22,924,000

Capitalized net benefits or justifiable investment for flood control amounted to $5,806,000, as compared with the allocation of $4,241,000.

POWER PAYOUT

In order to demonstrate financial feasibility of the Yellowtail unit power development a payout study has been prepared on a 50-year basis, exclusive of basinwide project relationships, except that the transmission facilities and power output are considered as being integrated into the interconnected power system. The payout study is inserted at the end of this statement.

The investment components of the power development include the capital costs allocated to power at site and a proportionate amount of the interconnected project transmission system based upon the ratio of installed generating capacity at Yellowtail to total system capacity. This investment was suballocated into interest-bearing commercial electric plant and noninterest-bearing irrigation electric plant in accordance with the use estimated to be made of system power capacity by commercial and irrigation demands, respectively, or 75 percent to the former and 25 percent to the latter.

For purposes of determining the disposition of energy, the average annual ultimate firm energy generation of Yellowtail, after allowance for transmission losses, was divided in accordance with the basinwide average into firm commercial and irrigation pumping sales. Thus 12.7 percent of total firm energy was assigned to irrigation pumping sales.

The approved interim schedules of rates for wholesale firm power service for the Missouri River Basin project have been used in the study. This schedule of rates requires payment of a capacity charge of $0.75 per month per kilowatt of billing demand, and a monthly energy charge of 3.5 mills per kilowatt-hour for the first 250 kilowatt-hours per kilowatt of billing demand and 3.0 mills per kilowatt-hour for the balance used. Under this schedule of rates the total charge averages 5.5 mills per kilowatt-hour for firm commercial sales at market load factor and 13.8 mills for that portion of the annual firm energy which will supplement excess energy from other system plants in a manner to permit the combination to be marketed as firm power sales at market load factor. The average revenue per kilowatt-hour attributed to the capacity and energy obtainable from Yellowtail is the capacity portion of the effective rate schedule plus the energy charge on the Yellowtail energy contribution.

The capital and annual repayment obligations for the Yellowtail unit were divided so as to recognize the Hardin unit irrigation costs which would obtain under alternate plans of development. The most economical plan for providing irrigation water would be by gravity diversion from the Yellowtail Reservoir. This plan would reduce total power production from that attainable under the proposed plan whereby maximum utilization of falling water would be achieved by running all water through the powerplant and then pumping the irrigation water back to the required elevation for diversion. The latter plan proved most economical from an overall standpoint and was selected. However, irrigators were considered obligated only to the extent of those lesser costs which might have been incurred by the gravity diversion method. In the proposed plan, an amount of $2,775,000 was added to the separable power capital costs representing the excess capital costs of the pumping installation over gravity diversion costs. Also for the same reason, an operation and maintenance differential of $35,200 was added to annual power costs, and pumping energy sales were reduced by 44,300, the amount required to pump water into the West Canal for the Hardin unit.

Estimated reimbursable power development costs

Separable costs		$34,666,000
Powerplant	$21,294,000	
Switchyard	2,579,000	
Afterbay Dam	1,585,000	
Other separable costs	6,433,000	
Hardin unit pumping plant differential	2,775,000	
Transmission system [1]		24,494,000
Allocation of joint costs		32,537,000
Total power costs		91,697,000
Less 25 percent for interest-free investment		22,924,000
Commercial electric plant investment		68,773,000

[1] Proportionate share of MRBP transmission system.

Estimated annual operating costs

Operation and maintenance:	
Specific power, including transmission	$561,950
Joint works, allocated to power	9,330
Hardin unit operation and maintenance differential	35,200
Total operation and maintenance	606,480
Replacement reserves:	
Specific power, including transmission	468,824
Joint works, allocated to power	25,253
Total replacement reserves	494,077

Financial feasibility summary

Gross revenue		$207, 860, 2
Revenue deductions:		
Operation and maintenance	$30, 787, 660	
Replacement reserve	25, 075, 575	
Subtotal deductions		55, 863, 2
Net operating revenues		151, 996, 9
Commercial power investment	$68, 773, 000	
Interest charges	46, 036, 775	
Subtotal		114, 809, 7
Net surplus in 50 years after meeting requirements of repayment of commercial power investment		37, 187, 2
Interest-free investment in Yellowtail unit (suballocation of power costs to irrigation)		22, 924, 0
Net surplus in 50 years after meeting requirements for repayment of total power investment		14, 263, 2
Interest charges collected		46, 036, 7

The foregoing analysis has not taken into account interest during construction as a capital cost. The computed amount applicable to this cost is $3,564,000 which would reduce the net surplus in the 50-year analysis substantially; however, anticipated cost reductions arising from application of recent construction cost indexes will more than offset the adverse effect of including interest during construction. The net result of these changes will not significantly alter the general condition of feasibility demonstrated above.

CONCLUSION

The above analysis demonstrates that the Yellowtail unit is economically and financially feasible under the approved interim schedules of rates for power service in the Missouri River Basin project.

GENERAL STATEMENT, HARDIN UNIT, MONTANA, MISSOURI RIVER BASIN PROJECT

The Hardin unit comprises about 45,800 acres of benchlands just downstream from Yellowtail Dam in Big Horn Country in south-central Montana in the vicinity of Hardin. Unit lands are shown in yellow and existing irrigated lands are shown in green on both the attached map and display chart.

Of the 45,800 acres, 44,000 ares are new lands and 1,800 acres are now irrigated from Soap Creek, an eastern tributary to Big Horn River, by an inadequate supply. About 40,000 acres lie on the west side of the valley and 5,800 acres lie on the east side of the valley.

PROJECT WORKS

The presently contemplated plan for serving irrigation water to these arable lands contains the following main features: Hardin pumping plant, west canal, east canal, War Man relift pumping plant, and War Man canal.

Hardin pumping plant.—The pumping plant will be located on the left bank of the Big Horn River just below the mouth of the Big Horn Canyon, about 1 mile below Yellowtail Dam site. The plant will contain electric motor-driven pumps, with a total capacity of about 1,095 cubic feet per second pumped against a static head of about 90 feet. The intake for the pumps will be located in the backwater of the Yellowtail (lime kiln) afterbay dam, which reregulates the flows released from Yellowtail Dam.

West canal.—The west canal originates at the discharge end of the Hardin pumping plant and will extend along the west side of the Bighorn River for a distance of about 70 miles to serve an area of about 40,000 acres of benchland. Most of the lands to be served by this canal lie in a continuous strip 2 to 4 miles in width and about 42 miles in length. The canal will have an initial capacity of about 1,100 second-feet. Canal excavation will be mostly in earth and the principal structures will include two siphons and three major drops.

East canal.—The east canal takes off from the main or west canal a few hundred feet below the end of the Hardin pumping plant discharge line, crosses the Bighorn River by an inverted siphon, then traverses about 10 miles eastward, furnishing water to about 2,100 acres of irrigable benchland above the existing Bighorn Canal. East canal terminates at Soap Creek, but will discharge sufficient water into that creek to supplement the supply to about 1,800 acres with a supplemental water supply. Water destined for lands under War Man canal are transported by the east canal to the War Man relift pumping plant located beyond the discharge end of the siphon across the Bighorn River. The lands to have new irrigation under this canal are within a compact area lying a short distance below the mouth of the Bighorn Canyon.

War Man pumping plant and canal.—War Man pumping plant relifts water from east canal through a static head of about 60 feet to War Man canal, which traverses eastward about 5 miles furnishing a full irrigation supply to about 1,900 acres of arable land lying between War Man and east canals.

In addition to the works described lateral and drainage systems will be provided.

It should be recognized that the above-described plan for irrigation of the lands in the unit is based largely on a reconnaissance survey. When more detailed land classification surveys and engineering studies of alternate layouts of the canal system are completed, it may be found economical to include a somewhat larger acreage of land by locating the west canal on grade through a greater portion of its length.

CONSTRUCTION COST

The estimated cost of construction of the distribution system for the Hardin unit, at January 1954 prices, is as follows:

Hardin pumping plant	$5,021,000
War Man pumping plant	146,000
Hardin canals and conduits	3,314,000
Hardin laterals	2,597,000
Hardin drains	2,436,000
Farm unit development	210,000
Total	13,724,000

Of the above costs, only those on Hardin pumping plant were based on feasibility standards, the remainder being reconnaissance type. More detailed investigation will probably reveal deficiencies in the estimate as well as more economical means of providing service; however, the above estimate is representative of the anticipated costs of construction for the entire distribution system as now laid out.

WATER SUPPLY

The annual irrigation requirement at the point of diversion for the irrigable lands of the Hardin unit is estimated to be 3.8 acre-feet per year, for a total diversion requirement in a dry year of about 170,000 acre-feet.

The Bighorn River is the only practicable source of water for irrigation of the Hardin unit. With full upstream development, as now contemplated, an active storage capacity of 95,000 acre-feet would be required to furnish Hardin unit lands with a full water supply without adverse effects on senior downstream water rights. Regulation afforded by Yellowtail Reservoir would be more than ample to provide these storage water needs.

LAND RESOURCES

Investigations of land resources to date consist of a soil survey made in 1938 under the auspices of a Montana Agricultural Experiment Station, Corps of Engineers, and the Bureau of Plant Industry, a reconnaissance land classification completed by the Bureau of Reclamation in 1939 and a deep pit study made in 1952. These investigations and observations, substantiated by laboratory tests, clearly indicated the adequate arability of the lands of the Hardin unit.

Soils are quite variable, ranging from a heavy clay loam in the lower areas to a sandy loam in the upland areas. The greater part of the unit area is underlain with gravel at depths of 4 feet or more. Soil characteristics are quite favorable to sustained irrigation agriculture.

Drainage.—The pit study, conducted in 1952, consisted of 115 holes to determine if any serious drainage problems might exist with application of irrigation water.

Based on the results of this reconnaissance study, it is the consensus of qualified personnel that no serious drainage problem should develop. However, the ultimate costs of drainage have been conservatively estimated to be $25 per acre for surface drains and $28 per acre for deep drains. The latter may be on the high side, but the estimate should not be reduced until detailed drainage studies have been completed.

Land certification.—At the present time there is insufficient data available to make the certification as to the adequacy of soil survey and land classification which is now required by permanent legislation. A detailed land classification survey is now underway.

AGRICULTURAL ECONOMY

Present situation.—Irrigation in the lower Bighorn Valley is already well advanced and irrigation practices have been established.

At the present time there are 5 direct diversions from the Bighorn River below Yellowtail Dam serving irrigation water to approximately 43,000 acres. The combined ultimate irrigable acreage under existing works is estimated to be about 53,700. Upland benches are mainly dry farmed, and the remainder of the area is used for grazing.

Ninety percent of the lands comprising the Hardin unit are devoted to dryland wheat, and 10 percent to grazing. Summer fallowing is practiced extensively. Production on lands cropped varies from a high of about 27 bushels of wheat per acre in the most favorable years to a low of about 4 bushels per acre in drought years. Average annual yield is 13 bushels per acre. Carrying capacity of the grassland is estimated to be 30 acres per head for year-round grazing.

In 1949 the Hardin unit area was divided among 22 operating units, varying greatly in size. Four of the largest operators controlled about 28,000 acres. About 27,000 acres of the unit lands are Indian owned; all of these lands have been allotted.

Anticipated situation.—An irrigated agricultural economy similar to that on existing irrigation projects along the lower Bighorn, Little Bighorn, and lower Yellowstone Rivers is expected to develop from the Hardin unit. With full development of the unit lands, about 290 new family-sized farms would be available. Production on these farms is expected to follow closely the pattern prevailing on nearby irrigated projects with similar climatic conditions. The principal crops to be grown would be alfalfa, sugar beets, barley, wheat, corn, and oats. Gross farm income of about $84 per acre is anticipated, which is an increase of $73 per acre over the present situation. This is based upon the anticipated long-range price level and the practice of 50 percent summer fallow for wheat production in the present situation.

Due to the large surrounding area of grazing land, the general area is devoted largely to production of grass-fattened cattle. Feed production is now pretty much in balance with carrying capacity of grazing land. Irrigation of the unit lands could provide feed to fatten about 19,500 beef cattle annually in the area, which would reduce the number of feeders now shipped out by about 40 percent.

In addition, transportation facilities are good and a modern sugar beet factory is located at Hardin. These factors would be conducive to diversified cash crop production if desired. Byproducts from sugar beet production would fit well into feeding enterprises.

Another result of irrigation is that it would reduce the area devoted to wheat from about 40,000 acres to 5,000 acres.

ANNUAL COSTS

Annual costs assignable to the Hardin unit include operation, maintenance, and replacement costs of the irrigation system, and an appropriate share of annual operation, maintenance, and replacement costs of Yellowtail Dam and Reservoir allocated to irrigation.

The pumping plan of diversion was adopted because increased power generation more than justified the increased costs over the gravity diversion. Annual operation, maintenance, and replacement costs to be paid by the irrigators are the same as would be required for the gravity diversion.

Annual operation, maintenance, and replacement costs assignable to the Hardin unit on the basis of present costs are estimated as follows:

	Per acre
Canal, lateral and drainage systems	$2.00
Diversion works and canyon conduit	.44
Yellowtail Dam and Reservoir	.35
Total	2.79

Long-time average annual costs are considered to be 72 percent of present costs, making the anticipated annual operation, maintenance, and replacement costs of the Hardin unit $2.00 per acre.

ALLOCATION OF COSTS

Construction costs assignable to the Hardin unit include the cost of the irrigation system plus the allocation of construction costs of Yellowtail Dam and Reservoir to irrigation.

As the pumping plan of diversion was adopted rather than the gravity plan because of benefits to the power system, only the costs equal to those for the gravity diversion are to be assigned to the irrigation system. The pumping plan costs $2,775,000 more than the gravity diversion. Consequently, the cost of the irrigation system for Hardin unit is allocated as follows:

Power	$2,775,000
Irrigation	10,949,000
Total	13,724,000

Total costs allocated to the Hardin unit are:

Irrigation system	$10,949,000
Yellowtail Dam and Reservoir	26,552,000
Total allocation to irrigation	37,501,000

Costs allocated to irrigation amount to $819 per acre.

IRRIGATION PAYOUT

The average annual payment capacity of lands comprising the Hardin unit has been estimated on a conservative basis at $6 per acre for new lands and $5 per acre for lands to receive supplemental water. With an average annual operation, maintenance, and replacement cost of $2 per acre, this leaves $4 per acre to apply on repayment on new lands, and $3.00 per acre for supplemental lands.

Allowing a 10-year development period before repayment charges begin and a 40-year repayment period, a total of $7,256,000 would be repaid by the landowners. This would leave $30,245,000 to be returned from power revenues from power revenues from the Missouri River Basin power system.

PROSPECTIVE PARTNERSHIP IN YELLOWTAIL PROJECT

Mr. MAGNUSON. Who are the prospective partners in the view of the Bureau of the Budget?

Mr. CLINTON. The two that have indicated an interest in it recently are the Montana Power Co. and the Pacific Power & Light Co.

Mr. MAGNUSON. Do you know in general terms the format of the proposed partnership?

Mr. DEXHEIMER. If I may, I think I can give you a little more light on that. In our recent hearings a few weeks ago, before the Senate Interior and Insular Affairs Committee on Yellowtail, the Pacific Power & Light Co. said they were interested and filed a statement with the committee on a partnership development in which they might participate. But, there have been no details. As a result of the hearings, the chairman of the subcommittee asked the under secretary to investigate further the possibility of a partnership and he did write to the Montana Power Co. and the Pacific Power & Light Co.

and requested that they make a firm proposal of just what their partnership concept would be, by the first of May. We have not yet received that.

I have talked with Mr. Delucia who, I believe, is vice president and general manager of the Pacific Power & Light Co., on several occasions and he told me he hopes to have something for us before very long. But, as yet, they have no firm proposal as to what they contemplate would be a proper partnership arrangement. They have, however, asked us to build the Lovell-Yellowtail line which we stopped construction on a couple of years ago. They would like very much to have us complete that line so as to use it in the period of the next 3 or 4 years for bringing power from Montana down into the Casper area of Wyoming. They propose that they might either lease the line or complete it themselves, and make some suitable arrangement so that they could bring the power into Wyoming, until such time as they can build their proposed steam plant in the vicinity of Casper. Because of the shortage of power, we have insisted that we need the full capacity of the Lovell-Yellowtail line when Yellowtail comes in, in order to give us the flexibility of operation that would be required. So, up to now, there has been no real proposal made directly from either of the power companies to us, or to the Department.

Mr. MAGNUSON. I see. You mentioned the Senate Interior and Insular Affairs Committee hearing this year. Is that the hearing investigating the delay in the programing of Yellowtail?

Mr. DEXHEIMER. I think it was essentially that. That is what they did—was to review the Yellowtail proposal and to see if they could not get the work started. They had before them at that time a letter from the Bureau of the Budget raising the two questions Mr. Clinton spoke of, that is, the feasibility and the partnership proposal. We were to report back to that committee on May 1, or at such time as we received a proposal from the power companies, but they have not given this to us as yet.

Mr. MAGNUSON. When the Bureau of the Budget questions the economic feasibility of a project, obviously the Bureau of Reclamation must be convinced of the economic feasibility, having already completed advance planning and spent $2.5 million on planning and, of course, requested funds in 7 successive years.

Mr. DEXHEIMER. Not only the Bureau of Reclamation—we are entirely satisfied with the feasibility and the practicability of the Yellowtail Dam and the irrigation that goes with it. The Congress has been satisfied and the legislative committees and the Congress have approved it for construction. It is authorized and has been for some time. The question as to the economic feasibility raised by the Bureau of the Budget had to do with the proposed sale of power in that area and their computations were based on erroneous assumptions as to the marketability of the power. We think that because Yellowtail is a high head plant and some of that power will be available as peaking power that it can be used effectively to firm up offpeak power elsewhere in the interconnected power system.

Mr. MAGNUSON. When you say "we think," you mean it is.

Mr. DEXHEIMER. That is the plan. It is a comparatively high head plant and would work in very well with the lower head Missouri Basin main stem plants for peaking purposes. The capacity we pro-

pose to install would be coordinated with those other powerplants in the Missouri Basin, so as to get the maximum amount of firm power generation by combining them. After we presented that plan to the Senate committee, the chairman submitted the question of power sales and rates for power to the Federal Power Commission, and he expects a reply from the Federal Power Commission as to the feasibility of selling the power from Yellowtail that way. We at present anticipate no adverse report from the Federal Power Commission.

Mr. MAGNUSON. The Bureau of Reclamation, then, is completely satisfied there will be a market for the power?

Mr. DEXHEIMER. Yes, sir; we are satisfied there will be a market for more power than we can get there, and sooner than we can get it, too.

HARDIN IRRIGATION UNIT

Mr. MAGNUSON. How much of an irrigation factor is there in this project of Yellowtail?

Mr. CLINTON. There will be approximately 45,000 acres in the so-called Hardin unit that can be developed in connection with Yellowtail. In fact, Yellowtail Dam is necessary to provide a diversion facility for that unit, as well as to provide the necessary storage on the Big Horn River to give a water supply for that land.

Mr. MAGNUSON. I am not quite clear. Is there a Hardin irrigation unit and a Yellowtail Dam unit?

Mr. CLINTON. Yes, sir. We carry them as two separate units.

Mr. MAGNUSON. And both of them are dependent for their water on construction of Yellowtail Dam?

Mr. CLINTON. The Hardin unit is dependent on the Yellowtail unit for its water supply; also for a means of diverting water from the river.

Mr. MAGNUSON. What is the precise status of the Hardin unit at the moment?

Mr. CLINTON. We have made a reconnaissance investigation of it in past years and are now engaged in a detailed investigation. That was one of the reasons why in allotting this additional $415,000 of investigation funds we allotted another $50,000 to the Hardin unit in order to expedite the detailed planning of that unit, so that it will be ready to go into construction soon after Yellowtail Dam is started—whenever that may be.

Mr. MAGNUSON. You obviously believe there will be a Yellowtail Dam.

Mr. CLINTON. Yes, sir.

Mr. MAGNUSON. And water would be available whether it is a partnership project or a Federal project?

Mr. CLINTON. That is correct. The water would be available for the irrigation unit either way.

POWER

Mr. DEXHEIMER. I have just been informed that the Federal Power Commission has, just yesterday, officially said that the 185,000 kilowatts of power to be installed at Yellowtail, at the market load factor proposed by the Bureau of Reclamation, would be absorbed by the market in that area and at the Missouri Basin rates for the sale of

power. So that clears up that point as to the sale of power and the financial feasibility of the project. It leaves us with only the question of the proposed partnership.

Mr. MAGNUSON. The Bureau of the Budget would concede that the Federal Power Commission is better qualified to judge the marketability of this power than the Bureau of the Budget is, I would judge?

Mr. DEXHEIMER. I would not know as to that, Mr. Magnuson—what they would concede. We would think so, as it is the body charged with it.

Mr. MAGNUSON. And the Federal Power Commission are presumably experts in that field?

Mr. DEXHEIMER. Yes, sir. We depend on their estimates of load growth, price, and salability of power for our studies and I think most Government agencies and private utilities, for that matter, depend on their studies to a large degree in those matters.

MOORHEAD DAM SITE

Mr. RILEY. I see one project here, which is Moorhead Dam site, on the Powder River in southeastern Montana. I note that the only activity underway on this unit in fiscal 1956 will be operation and maintenance of a temporary camp which will require $1,000. What is that?

Mr. CLINTON. The Moorhead unit is one where money was appropriated in fiscal 1948 as a part of the President's flood-control program in that year to get construction of several tributary reservoirs started in order to alleviate the flood problem on the tributaries of the main Missouri. Construction of Moorhead Dam was started shortly after that appropriation, but because of differences of opinion between Wyoming and Montana on whether the project should be built and objections on the part of landowners in the reservoir area in Wyoming, the construction was stopped. At that time we had completed the temporary construction camp. Part of that camp has been dismantled, some of the buildings have been moved, some moved to Tiber Dam. The others that we could not use have been kept there and we have had the job of keeping the buildings maintained and this $1,000 we are asking for this year is the amount necessary for that purpose.

Mr. RILEY. Do you have a caretaker there for protection of the Government's property?

Mr. CLINTON. Yes; we have a caretaker there.

MAIN STEM POWER PRODUCTION AND REPAYMENT

Mr. PHILLIPS. Mr. Chairman, I hope you will bear with me patiently, because my conception of this is that it is the Appropriations Committee which has responsibility for the spending of money, and I want to resume the line of questioning which I was carrying on. I will be as brief as possible. I want to make it clear, Mr. Chairman, that I have no prejudice for or against any of these projects. One or two names I recognize; the others I do not. I have been asking questions on the line of where the money was coming from to pay for them and yesterday, when Mr. Dexheimer and Mr. Clinton returned, I asked you, Mr. Chairman, to initiate a request for a statement from the Engineers as to how much money was available.

Now turning to the report which I cited the other day when the Corps of Engineers was here, you remember, it is headed "Missouri River Main Stem Reservoirs, Corps of Engineers, Missouri River Division, Omaha," dated October 1952 and revised to March 1953.

Now, Mr. Chairman, the cost of producing power on the main stem reservoirs is estimated in this book at $30,810,000. That is table VII (2). The committee's investigative staff a year ago took the scheduled rate, at which the Bureau expected to sell power produced on the main-stem reservoirs and figured the total gross revenue would only be $32,200,000. That allows for the sale of the entire output. It allows for no transmission losses which ought to be estimated, I would say—would not you, Mr. Clinton—at about $5 million. In other words, the net revenue is certainly going to be less than the $30 million that it is going to cost to produce it.

I think the Congress is entitled to some analysis of how we expect to pay for this group of projects, projects in the whole area, and the basis for the estimates of the amount of power that is going to be produced and sold.

Mr. DEXHEIMER. I think you are correct, Mr. Phillips, and the Congress has had that before them in many instances—the studies of the pay out of the Missouri River Basin project—and we are now in process, at the request of the Congress, of preparing a new study based on a different allocation of costs to some extent. I do not know where the figures came from that you may be quoting from the investigative staff.

Mr. PHILLIPS. I am quoting partly from this report and also from the figures on the probable sale prices of current, at 7.2, 3.2, and 2.5.

Mr. DEXHEIMER. But all of those studies—and I think they have been made available to the Congress—have been made of the payout, sale of power, water, and other revenues from the project and they indicate, as I said yesterday, that there are very substantial surpluses for assistance of irrigation. Not only for the presently constructed projects, but for those authorized and probably to be built within the next several years.

Mr. PHILLIPS. Do you not think, Mr. Dexheimer, that the Congress is entitled to more than a statement that it is available; that it is entitled to figures that would indicate some support of the statement that that power is going to be available and that the income is going to help pay for all of the projects in your list yesterday? Do not you think we are entitled to that before we continue to appropriate money?

Mr. DEXHEIMER. I think so, Mr. Phillips. I would like to point out this, that those studies have been made in the past; they have been made and given to Congress; they have been reviewed very critically by the Bureau of the Budget. Each time we came up for authorization for the Missouri Basin units questions have been raised about the feasibility and, so far as I know, Congress and the Bureau of the Budget have been satisfied with the payout schedules. We are in the process, as I pointed out, of reviewing those under the policies of the present administration to come up with current studies that would perhaps change some of the allocations of cost, or other things. But it will be some time before those studies can be completed. I fail to see, in view of the legislative history of the Missouri Basin project and the fact these committees have continually approved our going ahead

on the basis of the studies of this question, with not only the power development, but with the irrigation and other development in the Missouri Basin, why this committee needs to question those things particularly.

Mr. PHILLIPS. Because it is this committee's job.

Mr. DEXHEIMER. Inasmuch as they have been passed upon by the other committees and by the Congress itself.

Mr. PHILLIPS. Now that presents a theory of the position of the Appropriations Committee which I am not sure would be accepted by Congress or by the 50 members of the Appropriations Committee, that if a project is approved all that is necessary for this committee to do is to draw a blank check. I have served for 12 years on the Appropriations Committee here and 10 years on similar committees in California, and nobody has ever presented that opinion to me before. And I think we should come back then, Mr. Dexheimer, to the question I asked specifically in some cases. I asked Mr. Clinton several times, "Did you actually present to the legislative committee the details you are now presenting to this committee," and the answer has been "No."

PROJECTS INVESTIGATION

OAHE UNIT

Now let us take Oahe. At Oahe, you have already had $4,300,000 for project investigation and now you are asking again for $350,000 and then in the testimony this morning you want to transfer another $100,000 to that project. So you are asking approximately for $5 million for investigation of the Oahe project. Now where does the investigation end? How soon did you find out that your Denver office, I presume, it was Denver, in 1949, said it was very evident to that office that there was a serious question as to whether Oahe could be economically drained and in 1951 you made a report as the result of a conference between the Bureau representatives from Washington, Denver, Billings, and Huron offices, and I quote——

> **The Bureau's premature activities toward securing local desire and cooperation for an irrigation project in view of the questionable soils, drainage, and economic outlook thus far are alarming and may cause later embarrassment.**

And in the face of that the same report said:

> **The major portion of the presently proposed unit lands cannot be drained, within their ability to pay, by conventional methods. This is because movement of water laterally through the subsoil into constructed drains will be too slow to accommodate the quantity to be expected.**

That is an engineering feature which I think is important, so let us take the cost, particularly the present cost. You say it was approved by Congress. The amount that was approved by Congress in the broad blanket approval that we hear about ever time was $84,500,000. That was in 1940. In 1942, that amount was increased to $202,750,000 and the present official estimate is over a quarter of a billion; it is over $250 million. Now making the necessary adjustments, as you did very properly yesterday, on the basis of the value of money, labor, and so forth in 1940 and 1955, puts it up to over $343 million and actually the people in the Denver division have said that this is going to cost $1,000 an acre, and it is a 750,000-acre project. So, according

to your own people, they figure this is going to cost $750 million and all you report to us is approximately $250 million.

I do not think it is quite proper for you to sit there and say this has been approved by the Congress and the Appropriations Committee has not anything to do but just to draw a blank check. I do not think that will stand. I do not want to pursue this matter on and on and on, but the members of the committee ought to know that we are being asked to appropriate money without adequate information on projects which have never been sustainable as feasible projects.

Mr. RILEY. Will the gentleman yield?

Mr. PHILLIPS. I yield, of course; but do not you think we ought to have some more information, Mr. Chairman?

Mr. RILEY. Yes, I do; but I do not know that Mr. Dexheimer intended his statement to carry the import which apparently it did; because this committee is not bound absolutely by any legislative committee or by the action of the Congress unless it specifically appropriates money. It is our responsibility, even after a project is authorized, to say whether or not we are in a position to spend the money or to appropriate money at this time. And we have hundreds and hundreds of approved projects, Mr. Dexheimer, that we do not appropriate a dime for and I do not know when we ever will.

Mr. DEXHEIMER. I think, Mr. Chairman, I might have been misunderstood. I thought I had made myself clear. We have, before this committee, gone into a great many things such as the cost-benefit ratio, the farm benefits, and the economics of projects. One such unit in particular was just recently reauthorized by Congress last year, after a very careful review of all of those things, we have spent a great deal of this committee's time working on it. Now those projects are under construction and have been approved by previous committees and Congresses. So then it seems to me that taking a great deal of the time of this committee is not warranted because the figures and the facts on all of those are before the Congress and have been for some time back.

As regards the investigation of those things which we are not presenting to you for construction, and particularly the Oahe unit. I was alarmed, too, Mr. Phillips, by what had gone on on the Oahe unit and, because of the adverse reports we had, we had to go into quite a detailed investigation of the lands that were proposed to be irrigated. That takes quite a bit of time and money. The people had indicated a desire for the irrigation; the Oahe Dam was partially built to provide water for irrigation in that general area. When we ran into these difficulties of course we were even more careful and, as the report you quoted from Denver points out, some of our people were skeptical about the possibility of the drainage of those lands. Last year we succeeded in having a Board of Consulting Engineers convened to investigate and advise us on that particular problem. As a result, we have dropped from further consideration at this time, at least, the lands which the consulting board found were not susceptible of drainage. There are, however, other lands in that general area that can be suitably irrigated and drained, and this planning money is needed to go ahead preparing the plans to work out the best utilization of the water resources we have in that general area from the Oahe Dam.

Mr. PHILLIPS. If I may resume, what would you say would be the average cost to have an investigation for a project that is to cost a quarter of a billion dollars?

Mr. DEXHEIMER. It usually runs 1 to 1.5 percent of the total cost of the project.

Mr. PHILLIPS. This, then, has already cost twice what the ordinary project is costing for investigation; is that right?

Mr. DEXHEIMER. I think the cost to date will be about 2 percent.

Mr. PHILLIPS. Which figure are you taking; the figure of your Denver office that suggests the total cost will be about $750 million, or the cost which you have testified to this committee, which is about $250 million, I gather? Which of those figures are you taking? You have already spent about $4,300,000 on investigation and you are asking for an additional $350,000 in the present justification and you want to transfer $100,000 more, which would make that $4,750,000.

My attention is called to the fact I omitted the 1955 money; so it runs up to about $4.8 million, which is one and a fraction percent, or a little less than 1 percent of the Denver office estimate.

I think you have already spent a lot of money on it. It may be all right; but I would certainly suggest that this committee ought to have more information before it spends any more money.

SHADEHIL PROJECT

Now let us jump quickly, because I do not want to keep taking up the committee's time, although I think, personally, it is extremely important, but let us go to Shadehill which we talked about yesterday. Will you tell me where you described the Shadehill project to the legislative committee in detail?

Mr. DEXHEIMER. It was described at the time of the second supplemental in 1948.

Mr. PHILLIPS. Mr. Clinton, can you tell us about that?

Mr. CLINTON. It was discussed under the second supplemental.

Mr. PHILLIPS. I am going to confess that I have tried to find out, but I have not been able to. That was before the Appropriations Committee?

Mr. CLINTON. Yes, that was before the Appropriations Committee.

Mr. PHILIPS. Did you discuss it in complete detail with a legislative committee?

Mr. CLINTON. I do not believe that it was discussed with a legislative committe, Mr. Phillips.

Mr. PHILLIPS. Yesterday we were talking about the salinity problem up there, and I called your attention to the fact that there was considerable salinity in the water, and I asked you, Mr. Clinton, if the bureau was not aware, even before they started construction there, that salinity was an extremely severe problem there, and you said no, that was not known.

Mr. CLINTON. That is my recollection; I was not there at the time, Mr. Phillips.

Mr. PHILLIPS. When did you actually start construction there?

Mr. CLINTON. I will have to look it up.

Mr. DEXHEIMER. It was about 1947 or 1948. I do not recall.

Mr. PHILLIPS. The answer as given from your staff lines is December 1948. May I read, please, from parts of letters which I have here. The first one is from the Director of the Branch of Operation and Maintenance to the Commissioner of the Bureau of Reclamation, dated December 27, 1948.

I urge prompt approval of his recommendation that the contract for the construction of Shadehill Dam be awarded as now designed—

and so forth.

The question raised with respect to the quality of water in Grand River for irrigation purposes are fully appreciated, but it would certainly seem that there should be better coordination somewhere along the line to obviate last minute red flags that place the Bureau as a whole in the position of not knowing what it is recommending.

How can you tell me in the face of that that you did not know there was any question raised about the salinity problem at Shadehill?

Without going into the technical considerations raised or proposed allocations of costs to irrigation for flood control, the congressional actions show that Shadehill is primarily a flood-control structure and irrigation is only incidental. The fact that elimination of irrigation storage from Shadehill would reduce the cost only $1,000,000 certainly bears out this assertion.

That is the one from the Director to the Commissioner. Now in the one from the Commissioner to the Director it states:

In making this decision—

and I interpolate, which is that your recommendation to proceed with the awarding of the contract on Shadehill Dam has been concurred in—

In making this decision I recognize that the meager information on the quality of water indicates that it may be unsuitable for sustained irrigation because of the high percentage of sodium. Before proceeding further with plans for irrigation, a detailed study should be made of water quality, the location in the drainage area where the sodium originates, and the amount of flow from such area into the reservoir.

There are a lot of other things in the letter, but my point is that I do not really like to have you sit here before the committee and say that you had no knowledge of the salinity problem at Shadehill, or that you have presented these various projects in detail to the Congress and the Congress approved them and, therefore, the job of the Appropriations Committee is just to give you the money.

Now, do you want to check into that or to say anything about it?

Mr. DEXHEIMER. As Mr. Clinton has pointed out neither he nor I were involved in these things at that time, particularly as regard Shadehill. I think, as he also testified yesterday, and as indicated in those letters, that the primary function of Shadehill was flood control. The salinity of the water was not a major problem. While I am not trying to defend going ahead on that basis, I do not know whether the problem of salinity was presented to the Congress before that or not.

Mr. PHILLIPS. I would be very much interested to see, just as a matter of information for this committee, just how Shadehill was presented to the Congress. Mr. Culp, can you get me the second supplemental of 1948 while the other gentlemen are asking questions?

That is all.

Mr. DEXHEIMER. I would like to point out, Mr. Phillips, that Shadehill has been completed for some time, and that we are not asking for any funds from this committee for that unit.

Mr. PHILLIPS. Did you not ever read the Archives motto as you came along in the morning, something about the fact that we should learn from the past.

Mr. DEXHEIMER. I have read the one that says, "The past is but prologue," and I have the taxi driver's interpretation of it.

PROJECT POWER COSTS AND REVENUE

Mr. RILEY. Mr. Phillips, in the beginning of your discussion you used the figure of $30 million income.

Mr. PHILLIPS. Yes; that was the figure used by the staff on the basis of the cost.

Mr. RILEY. Was that just the firm power, or the total power?

Mr. PHILLIPS. That was divided between the various categories, and was for total power, making no allowance for line losses or failure to sell 100 percent of the power. So, actually, we have not that much income. We are basing our plans for income on a very thin reed.

Mr. RILEY. But the study here dated January 1954, Department of the Interior, Bureau of Reclamation, gives about that much income for firm power alone, and does not take into consideration the excess power which experience has shown we have.

Mr. PHILLIPS. That still probably would not meet the demands, but at least we should reconcile the two. Here is the corps on one side, and on the other side the Bureau. There is just a computation made from the figures, and we should certainly try to reconcile the figures.

Mr. RILEY. Yes, I agree with that.

Mr. DEXHEIMER. Is that a total of $30 million a year? We have, then, a return of $30 million per year on the investment up to date in power facilities.

Mr. RILEY. That is what I understood.

Mr. PHILLIPS. It is when completed.

Mr. RILEY. This study gives the total income as better than $44 million, if I read it correctly.

Mr. PHILLIPS. That is for main-stem plants only.

Mr. RILEY. So, I would appreciate your reconciling those figures for the record, please. Have them reconciled for us.

Mr. PHILLIPS. Do you have the citation on those?

Mr. DEXHEIMER. I guess it is in the record. We do not have a copy of the staff report, however, and do not know how they arrive at those figures.

Mr. PHILLIPS. I will refer again to the Missouri River Main Stem Reservoir Preliminary Cost Allocation Studies, Corps of Engineers, which is dated March 1952, and revised March 1953.

Mr. RILEY. Do your figures simply give the main-stem power or the power in the area in connection with it?

Mr. PHILLIPS. Just the main stem.

Mr. RILEY. The main stem?

Mr. PHILLIPS. Yes.

Mr. RILEY. That is probably where the difference comes in, then.

Mr. PHILLIPS. I will read this in, if I may, which might help Mr. Dexheimer:

The dependable peaking capacity for the six plants is reported to be 1,010,000 kilowatts and the average annual output 8,035,000,000 kilowatt-hours. At the scheduled Bureau rate of $7.20 per kilowatt demand and 3.5 mills per kilowatt-hour for the first 3,000 kwh/kw of firm energy and 3 mills per kilowatt-hour for the balance, and with 2.5 mills per kilowatt-hour for irrigation pumping power, the gross revenue would be approximately $32,200,000 if all the estimated potential power could be sold. However, as there would propably be at least 10 percent transmission losses and an annual transmission cost of at least $5 million, the net revenue would be somewhere in the neighborhood of $24 milion or about $6.5 million less than annual cost—

to produce the power.

I gave you the benefit of the doubt, and say if we were taking $30 million in income and we pay $30 million to produce power, this certainly would allow no money to pay the deficit on the projects that we have been talking about the last couple of days.

Mr. RILEY. In order to get the full picture you would have to take into consideration, it seems to me, these other generating units, because as I understand this situation, it all goes in on the same wires in a grid, is that right?

Mr. DEXHEIMER. Yes, sir, and I would like to point out particularly that the Corps of Engineers has nothing to do with the marketing of power. The Interior Department markets all of the federally produced power in these areas.

Mr. PHILLIPS. Well, nobody said that they had.

Mr. DEXHEIMER. No. I just wanted to point out the other side of it. Therefore, not being acquainted with or responsible for that, they not only would not know how it would be marketed, or how it might be handled at the various plants to get the advantage of the best possible marketing of that power, but they are not familiar, of course, with the rates that might be charged. These things apparently are based on some assumptions, and we do not have that report available to us to compare, so we do not know what assumptions were used.

Mr. PHILLIPS. The engineers' report is a report on the production of power. The income from power is a computation made on the Bureau's figures based on what they charge for power, and a separation into categories by previous experience. So, we are not taking any income on the basis of corps figures because they do not have them. We are taking them on the basis of the Bureau figures. If they are not correct you should correct them and if they are correct you should reconcile them or explain them to the committee.

Mr. RILEY. I think they should be reconciled, but I think the best evidence would be the actual statement of the income received from power.

Mr. PHILLIPS. Yes, the estimated income.

Mr. RILEY. At the very latest date, and then the estimated income.

Mr. PHILLIPS. From the main-stem plants, Mr. Dexheimer.

I do not want to get drawn into a segregated area on these plants, because we are talking about the deficit that the little plants are going to have and the reason they will have to draw on the main-stem plants.

Mr. RILEY. I see what you mean, but if these little plants make a contribution to it that should be considered.

Mr. PHILLIPS. Yes, they make a contribution, but they are also shown in previous testimony to have a deficit, and it is a deficit to cover which we are supposed to be drawing from the main-stem plants.

Mr. DEXHEIMER. That is not true in most of our plants.

Mr. RILEY. You have to take into consideration all of the power generated in the Missouri Basin. You have to take into consideration all of the power which is tied into these transmission lines. Am I right in that or not?

Mr. DEXHEIMER. Mr. Chairman, the difficulty here is that there are no doubt certain assumptions made in that report as to when certain units in the main-stem dams would be put in, when they would be put into operation, and there must be a forecast on the amount of water available to turn those generators, and how many hours per year they can operate.

The corps may have made some study of that, but we do not have the information or what their assumptions were, so that it would be very difficult for us to try to make any kind of a comparison on the basis that they have presented.

We have our own marketing studies of the power which is available, or will be available for distribution, and forecasts as of what would be the income, and so forth. It is quite a complicated problem that we have spent the last year and a half trying to work out ourselves.

Mr. PHILLIPS. That brings us back to the basis from which I started, that here is the Appropriations Committee being asked to put up money for these projects, yet the Bureau cannot tell us how much profit or loss there will be on the main-stem plants. All it says is that it is very confused, we have not finished the investigation, but we would like to have the money. Am I right in that?

Mr. DEXHEIMER. No, sir, Mr. Phillips.

Mr. RILEY. It seems to me you could give us the latest information you have, Mr. Dexheimer.

Mr. PHILLIPS. I would think so. I think that would be satisfactory.

Mr. RILEY. Put a statement in the record on that.

Mr. DEXHEIMER. I think I could do that.

(The following information was subsequently applied:)

BUREAU OF RECLAMATION, MISSOURI RIVER BASIN PROJECT

The power installations of the Missouri River Basin project, both generating and transmission, are operated and accounted for on an integrated-system basis and requested data on main-stem plants independently, are not available. The latest issued Power System Average Rate and Repayment Study (fiscal year 1953) shows the results of construction and operation to date and estimates for future years.[1] Sales of energy from the integrated system in fiscal year 1960 are estimated to aggregate 8,787,800,000 kilowatt-hours and produce gross revenues of $38,228,550. In 1971, when energy production is assumed to stabilize, total annual energy sales and revenues are estimated at 13,977,100,000 kilowatt-hours and $60,549,950, respectively. The estimated firm-power revenues have been computed on the Missouri River Basin interim monthly rate, applicable at the delivery point, as follows:

Per kilowatt of maximum integrated 30-minute demand (billing demand)		$0.75
First 250 hours use of billing demand	mills per kilowatt-hour	3.5
Balance of energy	do	3.0
Irrigation pumping energy	do	2.5
Nonfirm energy	do	3.0

[1] Fiscal year 1954 comparable study involving several changes is in the preliminary stage and has not been completed.

Ultimate installation of generating capacity as planned aggregates 2,538,300 kilowatts. All energy sales data are based upon delivery at point of sale after allowance of 7.5 percent for transmission system energy losses.

Mr. PHILLIPS. If it would simplify matters any, why do we not say to set it up as of when you think the plants will all be in operation? Would that be easier? Also when they are completed what you think the income would be, and what the cost would be and, therefore, how much money there would be to pay on the deficit of the other plants.

Mr. DEXHEIMER. I could give you now a figure on the basis of our study and forecasting. On the basis of when these other plants may be in, we estimate that by 1970 the estimated annual gross revenue from the Missouri project would be a very little over $60 million per year from power revenue.

Mr. PHILLIPS. It seems to me that is unimportant, so long as the Bureau indicates what it is, Mr. Chairman.

Mr. RILEY. It seems to me that it would be of value to this committee to have the latest figures that they have, and then, in addition to that, what the estimated revenue may be in 1970 or 1971, or whatever date you propose to have all of these in. In other words, I would like to have a comparison between the present situation and the estimated income when all of these units get into operation.

Mr. CLINTON. Mr. Chairman, may I comment on this?

Mr. RILEY. Yes.

Mr. CLINTON. You recall that we had a pretty lengthy and full discussion of this a week ago last Monday when Assistant Secretary Aandahl was here, and he explained to the committee at that time that he had just received this very recent review analysis from the field, that it had come in on April 15, and that he had not had a chance to review it in the Interior Department, and neither had the Department of the Army had a chance to review it here in Washington.

There are a lot of figures in that on the main stem that Mr. Phillips is asking for. He did volunteer Monday to give you the new cost allocations, qualifying it by saying that they may be subject to change. I think what you are asking for here is for us to go further than Assistant Secretary Aandahl volunteered the other day.

Mr. RILEY. If he puts that in that will take care of it, but it would not do us any good to get this report in August when we expect to make the appropriation in the next couple of weeks. That is the proposition that we are up against.

Mr. DEXHEIMER. The reason I say that this is a complicated matter is because of the question of how much of this cost in a multipurpose project you charge to power, and how much you charge to other features in order to determine the value of the power, and so forth, but we could give you the revenues, and probably the anticipated revenues without too much difficulty if that would suit your purpose.

Mr. RILEY. That will certainly be helpful in connection with what I had in mind, the present revenues and the anticipated revenues.

(The following information was supplied to the committee:)

TABULATION OF PRESENT AND ANTICIPATED POWER REVENUES

Following is a tabulation of the present and anticipated gross power revenues from the powerplants included in the preliminary 1954 annual economic study of the Missouri River Basin project. The anticipated revenues for 1955 and subsequent years are based on the schedule for additional plants and units of plants

being placed into production and on assumed water depletions. It is emphasized that for 1955 and subsequent years, data are based on preliminary estimates and are subject to change as refinements to estimates are made.

Through fiscal year 1953	$14,210,067
Actual fiscal year 1954	8,204,413
Anticipated:	
1955	15,989,290
1956	21,568,410
1957	26,629,980
1958	31,870,060
1959	32,827,960
1960	33,427,650
1961	34,522,610
1962	42,964,630
1963	51,537,980
1964	55,709,090
1965	59,389,000
1966	59,417,920
1967	59,248,840
1968	59,021,520
1969	58,871,210
1970	60,019,020
1971 and after	60,139,120

TUESDAY, MAY 3, 1955.

ALLOCATIONS OF MISSOURI BASIN PROJECT APPROPRIATIONS TO OTHER AGENCIES OF THE DEPARTMENT OF THE INTERIOR

WITNESSES

DEPARTMENT OF THE INTERIOR

HAROLD TYSK, LAND AND MINERALS OFFICER, BUREAU OF LAND MANAGEMENT
E. HARRINGTON, CADASTRAL ENGINEERING OFFICER, BUREAU OF LAND MANAGEMENT
HAROLD R. HOCHMUTH, LANDS OFFICER, BUREAU OF LAND MANAGEMENT
EVAN FLORY, CHIEF, BRANCH OF LAND OPERATIONS, BUREAU OF INDIAN AFFAIRS
JOHN C. REED, STAFF COORDINATOR, GEOLOGICAL SURVEY
LEON W. DUPUY, RIVER BASIN COORDINATOR, SPECIAL ASSISTANT, MINERAL RESOURCES, STUDIES OF RIVER BASINS, BUREAU OF MINES

FISH AND WILDLIFE SERVICE

JAMES T. McBROOM, COORDINATOR, RIVER BASIN STUDIES
BEN H. THOMPSON, CHIEF, DIVISION OF COOPERATIVE ACTIVITIES

NATIONAL PARK SERVICE

RONALD F. LEE, CHIEF, DIVISION OF INTERPRETATION
R. L. FREEMAN, ASSISTANT CHIEF, BRANCH OF RIVER BASIN STUDIES

Mr. RILEY. Now, we will take up the allocations of construction and rehabilitation appropriations to other Interior agencies. Without objection we will insert in the record a list of these agencies and the amounts requested for them.

(The matter referred to follows:)

BUREAU OF RECLAMATION

Missouri River Basin—Allocations of construction and rehabilitation appropriations to other Interior agencies

	1954 appropriation	1955 appropriation	1956 estimate
Bureau of Land Management	$175,000	$200,000	$200,000
Bureau of Indian Affairs	155,000	150,000	150,000
Geological Survey	1,660,000	1,475,000	1,660,000
Bureau of Mines	110,000	100,000	100,000
National Park Service	190,000	180,000	230,000
Fish and Wildlife Service	210,000	135,000	210,000
Total	2,500,000	2,240,000	2,550,000

FISH AND WILDLIFE SERVICE

Mr. RILEY. We will insert page 444 of the justifications.
(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT FISH AND WILDLIFE SERVICE

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized Fiancial Data

Total obligations to June 30, 1954		$3,083,813
Allotment, fiscal year 1955	$135,000	
Prior-year balance	35,883	
Total obligations, fiscal year 1955		170,883
Allotment, fiscal year 1956	$210,000	
Total obligations, fiscal year 1956		210,000

JUSTIFICATION

The sum of $210,000 is requested for studies to be made by the Fish and Wildlife Service in connection with the multiple purpose Missouri Basin project of the Bureau of Reclamation and Corps of Engineers, and for related work. The amount requested will be used by the Service to meet its responsibilities in this basin under the act of August 14, 1946 (60 Stat. 1080), and congressional directives to Interior agencies to continue the general plan of development for the Missouri River Basin.

The most pressing need for funds in fiscal year 1956 is for studies of the Garrison diversion unit. This unit, involving the proposed irrigation of 960,000 acres is the heart of the finest waterfowl producing area in the Nation, with four reservoirs and over 600 miles of main canals, will have a tremendous effect on the fish and wildlife resources of the United States. The principal emphasis of the Bureau of Reclamation in the Missouri River Basin is the completion of a definite plan for this unit, scheduled for the end of calendar year 1956.

Mr. RILEY. The committee will be glad to hear at this time from Mr. McBrown of the Fish and Wildlife Service.

GENERAL STATEMENT

Mr. MCBROOM. My name is James T. McBroom. I am Coordinator of the Office of River Basin Studies of the Fish and Wildlife Service.

Our Service has a great interest in the Missouri River Basin because of the extensive fish and wildlife resources in the area.

The Missouri River Basin constitutes about one-sixth of the total land area of the United States, and it contains some of the most important fish and wildlife habitat in the Nation.

Hundreds of thousands of hunters and fishermen make trips from other sections of the country into the Missouri Basin each year where, together with a large proportion of the local residents, they may hunt and fish in the plains and mountains of the Missouri River Basin where upland game such as pheasants, big game such as elk, deer, and waterfowl abound.

Plans for comprehensive development of the water resources of the Missouri River Basin by the Corps of Engineers, the Bureau of Reclamation, and non-Federal agencies under license from the Federal Power Commission, which have been proposed and adopted during the past 15 years, will have a very great effect upon the fish and wildlife resources of the area.

Our job is to determine the effect of these water resource developments on fish and wildlife resources and to recommend means and measures to compensate for the loss, or to mitigate the loss of fish and wildlife resources brought about by these projects.

AUTHORIZATION

Mr. Chairman, we work under the authority of the act of August 14, 1946, which is sometimes known as the Coordination Act, as well as under the authority provided the Fish and Wildlife Service and other Interior agencies for the investigation leading to a general plan for the development of the Missouri River Basin, pursuant to the Interior Department appropriation acts for fiscal years 1951 through 1955.

The Coordination Act was passed in response to a great demand on the part of literally millions of sportsmen and other conservationists throughout the country who had seen dams and reservoirs constructed in areas of good fish and wildlife habitat with little or no consideration being given to the fish and wildlife value of the areas.

The people who supported the Coordination Act were determined that there should be consideration of fish and wildlife resources, the same as other resources and values which were destroyed or modified by water-development projects.

Mr. Chairman, at this point I would like to offer for inclusion in the record a copy of section 2 of the act of August 14, 1946, which contains the heart of our legislative authority for this type of work, not only in the Missouri River Basin, but throughout the country.

Mr. RILEY. Without objection, it will be incorporated in the record.

(The matter referred to follows:)

SECTION 2, ACT OF AUGUST 14, 1946 (60 STAT. 1080)

"SEC. 2. Whenever the waters of any stream or other body of water are authorized to be impounded, diverted, or otherwise controlled for any purpose whatever by any department or agency of the United States, or by any public or private agency under Federal permit, such department or agency first shall consult with the Fish and Wildlife Service and the head of the agency exercising administration over the wildlife resources of the State wherein the impoundment, diversion, or other control facility is to be constructed with a view to preventing loss of and damage to wildlife resources, and the reports and recommendations of the Secretary of the Interior and of the head of the agency exercising administration over the wildlife resources of the State, based on surveys and investigations conducted by the Fish and Wildlife Service and by the said head of the agency exer-

cising administration over the wildlife resources of the State, for the purpose of determining the possible damage to wildlife resources and of the means and measures that should be adopted to prevent loss of and damage to wildlife resources, shall be made an integral part of any report submitted by any agency of the Federal Government responsible for engineering surveys and construction of such projects.

"The cost of planning for and the construction or installation and maintenance of any such means and measures shall be included in and shall constitute an integral part of the costs of such projects: *Provided*, That, in the case of projects hereafter authorized to be constructed, operated, and maintained in accordance with the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), the Secretary of the Interior shall, in addition to allocations to be made under section 9 of the Reclamation Project Act of 1939 (53 Stat. 1187), make findings on the part of the estimated cost of the project which can properly be allocated to the preservation and propagation of fish and wildlife, and costs allocated pursuant to such findings shall not be reimbursable. *In the case of construction by a Federal agency, that agency is authorized to transfer, out of appropriations or other funds made available for surveying, engineering, or construction to the Fish and Wildlife Service, such funds as may be necessary to conduct the investigations required by this section to be made by it.*" [Emphasis supplied.]

Mr. McBROOM. The effect of the construction of reservoirs, irrigation projects, and other water control projects in the Missouri River Basin on fish and wildlife will extend far beyond the boundaries of the Missouri River Basin. That is particularly true with respect to migratory waterfowl. The eastern part of the northern section of the Missouri River Basin is the most important duck-producing area in the United States.

Thousands of potholes and other wetlands in that area provide outstanding waterfowl production habitat which supplies ducks for the central and Mississippi flyways and are thus important to hunters in many other States, extending to the Gulf.

The Fish and Wildlife Service has responsibilities pursuant to laws enacted in accordance with international treaties to guard the welfare of migratory waterfowl, and that is one of the backbone programs of the Fish and Wildlife Service.

These projects which have been proposed by the construction agencies will have a significant effect on the waterfowl habitat in the northern plains area.

GARRISON DIVERSION UNIT

For example, the project known as the Garrison diversion unit includes, as part of its preliminary plan, the construction of a reservoir at the Westhope site on the Souris River, just inside the boundary of the United States. It so happens that this reservoir site is right at the key waterfowl refuge of the northern Great Plains area, that is the lower Souris National Wildlife Refuge. This refuge encompasses about 60,000 acres, and is one of the finest waterfowl management facilities that the Fish and Wildlife Service administers. We have excellent water rights, and the refuge is managed by a series of controlled-level pools, which create excellent conditions for the production of waterfowl food.

Now, this Westhope Reservoir, if it is built, is bound either to damage or destroy the lower Souris National Wildlife Refuge.

Mr. Chairman, that refuge is rightly regarded among the conservationists of this country as one of the keystones of our waterfowl conservation programs.

So it is up to the Fish and Wildlife Service, through the Office of River Basin Studies, to utilize the funds which are in the appropriation here requested, in cooperation with the Bureau of Reclamation, to determine how that refuge can be protected in conjunction with the plans which are being made by the Bureau of Reclamation.

The two agencies have to make engineering studies and allied investigations in order to determine whether or not there can be an operation plan for the Westhope Reservoir which will minimize the damage to the refuge. More important, at least from our standpoint, is the determination, in cooperation with the Bureau of Reclamation, as to whether or not there are alternative sites for the storage which is needed. Then we have to determine if there are other areas in the general vicinity which we might develop as waterfowl production sites.

I might say, in passing, that, so long as there is an assured water supply for refuge purposes, the lower Souris National Wildlife Refuge is particularly valuable to the welfare of the waterfowl resources of this country during periods of droughts, which have so severely reduced waterfowl populations in the past; it becomes most critical at those times to the welfare of the entire central and Mississippi flyways.

The necessary investigations of the Garrison diversion unit by our Service will cost an estimated $120,000 in the fiscal year 1956 for that unit alone.

We are anxious to find the answers which we need to avoid delaying the completion and submission of the definite plan report on the Garrison diversion unit on which the Bureau of Reclamation is now working. This, of course, would delay the start of the construction of this unit.

We are also anxious to avoid the submission of a report by the Bureau of Reclamation on this project which would be subject to severe public and official criticism by conservation groups because it lacks needed consideration of fish and wildlife resources.

There are other units of the Missouri Basin project which the Bureau of Reclamation is planning which are almost as important to wildlife as the Garrison diversion unit.

OAHE UNIT

One among them is the Oahe unit in South Dakota, involving the proposed irrigation of about 750,000 acres.

In this unit, like the Garrison diversion unit, there will be a considerable amount of drainage of project lands as a part of the project development. That drainage will be very serious to our diminishing waterfowl habitat.

Each State in the Missouri Basin, like all of the States, has a strong fish and game department. We do not, of course, duplicate the work of the States. However, we do serve effectively as a liaison between the State fish and game agencies and the construction agencies such as the Bureau of Reclamation and the Corps of Engineers. We also participate with the States in joint field studies, joint preparation of plans, and joint review of plans developed by others. We have established good cooperative relationships with the States for this work, and we wish to maintain them.

The follow-up of recommendations which have been made previously by the Fish and Wildlife Service in the Missouri Basin is another of our functions in the area. We need to appraise the results of these recommendations as a basis for increasing our effectiveness on future recommendations.

Mr. Chairman, we feel that the estimate of $210,000 for the fiscal year 1956 is the minimum amount which will keep our activities and work in the Missouri River Basin in balance with that of the Corps of Engineers and the Bureau of Reclamation so that the progress in the Missouri Basin development can proceed on schedule.

ALLOCATION OF FUNDS TO VARIOUS PROJECTS

Mr. RILEY. You are asking for a total of $210,000?

Mr. MCBROOM. Yes, sir.

Mr. MAGNUSON. Can you provide us with a rough breakdown, Mr. McBroom, of this $210,000?

Mr. MCBROOM. I would be glad to supply it for the record, Mr. Magnuson, if that is permissible. You mean a breakdown by project units?

Mr. RILEY. The amount that you propose to allocate to each unit.

Mr. MCBROOM. Yes, sir.

(The matter referred to follows:)

BUREAU OF RECLAMATION

Unit	*Amount*
Keyhole unit	$1,000
Heart Butte unit	1,500
Oahe unit	12,000
White division	1,500
Jamestown unit	1,000
Garrison Diversion unit	120,000
Canyon Ferry unit	1,000
Beaverhead division	2,000
Three Forks division	3,000
Lower Marias unit	1,000
Bighorn Basin division	3,000
Shoshone extensions unit	2,000
Boysen unit	1,000
Clarks Fork division	1,500
Riverton project	1,000
Kansas River Basin	5,000
Courtland unit	1,800
Cambridge unit	1,000
Frenchmen unit	1,000
Meeker-Driftwood unit	1,000
Webster unit	1,200
Wilson unit	1,500
Benkelman unit	1,500
Sargent unit	1,000
Scotia unit	4,000
Lavaca Flats unit	1,500
Ainsworth unit	1,000
North Platte River Basin	2,000
Glendo unit	1,000
South Platte River Basin	6,000

CORPS OF ENGINEERS

Cooperation with Corps of Engineers on reservoir operational plans	$3,000
Oahe Rservoir	8,000
Lewis and Clark Reservoir	1,000
Garrison Reservoir	2,500
Pomme de Terra Reservoir	2,000
Fort Randall Reservoir	1,000
Study of 10 watershed protective projects of Department of Agriculture	10,000
Study of 6 projects subject to Federal Power Commission license	5,000
Waterfowl distribution	2,000
Total	217,500

RECAPITULATION

Budget request	210,000
Estimated carryover [1]	7,500
Total available	217,500

[1] Carryover, if any, will result from limitation on expenditures for salary and travel in the section of the Interior Department Appropriation Act for fiscal year 1955 entitled "Bureau of Reclamation, Construction and Rehabilitation" where funds for studies in the Missouri River Basin by the Fish and Wildlife Service are included.

GARRISON DIVERSION UNIT

Mr. MAGNUSON. Did I understand you to say that among the investigations proposed by the Fish and Wildlife Service is one of the possibility of the existence of an alternate site for the Garrison diversion dam?

Mr. MCBROOM. No, sir; an alternate site for the Westhope Dam and Reservoir, which is one feature of the Garrison diversion unit. We have no proposals for changing the site of the whole unit.

Mr. MAGNUSON. Can we assume that the Bureau of Reclamation has very thoroughly examined all possible sites in the process of choosing the main site?

Mr. MCBROOM. Sir, it may be possible that they have done so and found that the Westhope site is the most feasible from the standpoint of strictly dollars and cents. We are hoping to find an alternate site, which might be less feasible in those terms, but which takes into full consideration the refuge and waterfowl values and makes it a satisfactory site from the standpoint of both the Bureau of Reclamation and the Fish and Wildlife Service.

Mr. MAGNUSON. To what extent would the Fish and Wildlife Service in this situation call upon information which must be in the hands of the Bureau of Reclamation?

Mr. MCBROOM. To a very great extent. We have an office at Bismarck, and the location of one of the Reclamation district offices is at Bismarck. We work closely with them. There is a great amount of interchange of information every day of the week. There is no possible duplication of effort.

Mr. MAGNUSON. Can we assume that you go in and say to the Bureau of Reclamation, "Now, what other sites did you consider, what were the factors which led you to discard this one or that one in favor of others"?

Mr. MCBROOM. That is right.

Mr. MAGNUSON. You are not equipped to actually do an engineering job in selecting a potential site for a Bureau of Reclamation dam?

Mr. McBroom. We are not equipped to select a site for them. However, we do have 2 or 3 engineers on our payroll who would be equipped to work with the engineers of the Bureau of Reclamation toward this objective which we are seeking.

Mr. Magnuson. I just wanted to be sure that the Fish and Wildlife Service would avail itself of the information available in the records of the Bureau of Reclamation and not do a lot of duplicating work.

Mr. McBroom. I would like to assure you on that point that we certainly never miss an opportunity to avail ourselves of the information which is available from the Bureau of Reclamation.

Mr. Riley. Mr. Davis?

RECOMMENDATIONS TO BUREAU OF RECLAMATION

Mr. Davis. On that score, Mr. McBroom, about all that you could be expected to do would be to call to the attention of the people of the Bureau of Reclamation the damage that would be done to conservation areas resulting from a particular proposed project, and then the responsibility must go to a higher level than that to attempt to reconcile the conservation aspect on the one hand to the general gain or benefit to the overall economy on the other. That is about as far as you can go?

Mr. McBroom. Well, sir, we go a little further than calling attention to the damage that might be done. In our operations throughout the country we also attempt to formulate measures for the protection of these wildlife resources which can be incorporated into the project plan.

Mr. Davis. Which would be in a case such as you mentioned, the recommendation of an alternate conservation facility, would it not?

Mr. McBroom. It could be that, or an alternate storage site for the water. We have the lower part of the Souris River which is needed for storage of the Garrison diversion unit, and which is also needed for waterfowl conservation. Our type of work with the Bureau of Reclamation is to try to satisfy both interests within the land and water resources that we have available in that general area.

Mr. Davis. I feared the impression could be gained from your original statement that with a small staff of three engineers that you are going to attempt to suggest to the Bureau of Reclamation where particular projects should be built, and so forth, which I think they would question to some extent.

I would think, as a matter of practical operation, that it might be possible for these engineers, once it has been pointed out that there is a conservation development involved to say to the Bureau of Reclamation, "How about this particular site?" and that they would come in and take over from that point.

Mr. McBroom. That is exactly the way we operate, and I am very happy that you cleared that up, Mr. Davis.

LEVEL OF APPROPRIATION REQUEST

Mr. Davis. Two years ago I noticed that there was $210,000 in this bill for this purpose, and last year it dropped to $135,000. I notice that is the amount which was requested of this committee last year.

Now we are back to the $210,000 level of 2 years ago. Will you explain that for us?

Mr. McBroom. Yes, sir.

There were reduced appropriation requests last year because of the schedule for completion of reports by the construction agencies which existed at the time the budget allowances were made. However, the results were not good. The necessity for keeping pace with the Bureau of Reclamation schedule on the Garrison diversion unit, which was changed sometime after the budget estimates were submitted last year, for example, put us in somewhat of a hole, and it is necessary that we get back on schedule in that respect.

Mr. Davis. You had a carryover of pretty nearly $36,000 in the current fiscal year. What does it look like it is going to be in the 1956 fiscal year?

Mr. McBroom. We have programed, of course, the expenditure of all of our funds, Mr. Davis, for this fiscal year. We do have a limitation on expenditures for salaries and travel in last year's bill, which applies to us as well as to the Bureau of Reclamation. This limitation may make it impossible for us to expend all funds available. The exact amount of anticipated carryover I cannot tell you, but I shall be glad to supply it for the record.

Mr. Davis. I think we ought to know that.

(The matter referred to follows:)

The unobligated balance as of June 30, 1955, is estimated to be $7,500.

Mr. Davis. Will you be a little more specific about what you are speaking for? You had $135,000 of new money going into this year, and you had a carryover of $36,000, which meant that this year you have available for obligation about $171,000.

Mr. McBroom. Yes, sir; that is correct.

Mr. Davis. And you told us that you had an expenditure ceiling put on you in the bill last year.

Mr. McBroom. There was a limitation put on expenditures for salaries and travel which was incorporated in the Bureau of Reclamation section of the appropriation bill, where this item occurs, last year which may result in some carryover.

Mr. Davis. Do you have the latest available figures on your obligated and unobligated balances in this appropriation?

Mr. McBroom. No, sir; I don't have. I would supply those for the record.

Mr. Davis. Give us what you expect to have as a carryover as of June 30.

Mr. McBroom. Yes, sir. That will be done.

Mr. Phillips. Is this area that we are talking about one of the areas of the great flyways?

Mr. McBroom. Yes, sir.

Mr. Phillips. Have you set out feeding areas?

Mr. McBroom. Yes, sir. They do set out feeding areas.

CONSULTATION OF DEPARTMENTS WITH FISH AND WILDLIFE SERVICE

Mr. Magnuson. May I ask another question before we go on? Mr. McBroom, section 2 of the act of August 14, 1946, which you cited and I think put in the record, provides that whenever any department or

agency of the Government begins work which will affect streams, or any body of water in the country, that the head of that agency shall consult with the Fish and Wildlife Service and State agencies in the same field.

I was interested in reading that paragraph, and I wanted to ask if this is effective. I don't see anything in it that suggests compulsion of any kind. Are there any teeth in this act? It says that they shall consult and they shall consider the views of the Fish and Wildlife Service, and presumably the State game departments. What happens if the agency working with the water chooses to ignore the recommendations of the Fish and Wildlife Service? Do they have any recourse?

Mr. McBROOM. The agency building the project has control over the formulation of the project plan. The Fish and Wildlife Service and the State game and fish departments have no veto power over these projects. The act does provide that our report on a project will be transmitted to the Congress, along with the report of the engineering agency on the project. That is for the information of Congress.

If the Congress determines that fish and wildlife resources and fish and wildlife conservation have not been given adequate consideration, the Congress may order changes in the project plan.

Mr. MAGNUSON. Did the Fish and Wildlife Service object to the Westhope site, in the first instance?

Mr. McBROOM. Yes, sir. We raised warning flags on that as soon as we knew about it.

GEOLOGICAL SURVEY

Mr. RILEY. The next agency to which transfer is made is the Geological Survey, which requests $1,660,000. Without objection, I will ask that pages 447 and 448 be inserted in the record.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, GEOLOGICAL SURVEY

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1954		$25,668,718
Allotment, fiscal year 1955	$1,475,000	
Prior year balance available	35,041	
Total obligations, fiscal year 1955		1,510,041
Allotment, fiscal year 1956 (total obligations)		1,660,000

JUSTIFICATION

The objectives of the Geological Survey under the Missouri River Basin project are the collection, analysis, and interpretation of basic data on the water and mineral resources, and the preparation of topographic and geologic maps and reports, that are essential for the most practical development and beneficial use of the water, mineral, and land resources of the basin. Such basic information is needed by the Bureau of Reclamation and all other action agencies of the Government, as well as by the States and private industry, in planning, constructing, and operating projects for the development of the basin.

Ever since the Missouri River Basin project was started in 1946, the collection of such basic data has lagged behind the planning and construction activities of the action agencies of the Government. Even though the construction programs of those agencies have been curtailed somewhat during the past few years, the

reduction in the funds of the Geological Survey during fiscal years 1954 and 1955 has still further eccentuated the disparity between the supply and demand for the basic information collected by the Survey. Expansion and acceleration of the Survey's program is necessary to provide the basic data needed by the action agencies to prevent delays in the resources development program.

Item	Adjusted appropriation, 1955	Decreases	Subtotal	Estimate, 1956	Increases
(1) Topographic surveys and mapping	$975,875	$20,875	$955,000	$955,000	.....
(2) Geologic and mineral resource surveys and mapping	105,326	326	105,000	105,000	.....
(3) Water resources investigations	428,840	.....	428,840	600,000	$171,160
Totals	1,510,041	21,201	1,488,840	1,660,000	171,160

GENERAL STATEMENT

Mr. REED. My name is John C. Reed. I am on the staff of the Director of the Geological Survey. I have here a prepared statement that I would offer for introduction into the record, if it is your desire. I can run over it very briefly without going into it in detail.

Mr. RILEY. Without objection, the statement will be incorporated in the record.

(The matter referred to follows:)

STATEMENT IN SUPPORT OF THE 1956 BUDGET ESTIMATE OF THE GEOLOGICAL SURVEY—MISSOURI RIVER BASIN PROJECT

The work that the Geological Survey performs as part of the Department's Missouri River Basin program is of the same types that it conducts with its regularly appropriated funds. The work conforms with the long-range objectives of the Survey, and most of it probably would be performed eventually even if no Missouri Riven Basin project funds were available. Project funds have enabled the Survey to do the work sooner and thus to meet better the needs of the Bureau of Reclamation and other agencies for basic information in the specialized fields of the Survey. This, of course, does not reduce the value of the information for its many other uses by those who ordinarily use and benefit from the Survey's products.

I will mention very briefly the major activities that the Survey is carrying on with Missouri River Basin program funds.

TOPOGRAPHIC SURVEYS AND MAPPING

Topographic maps portray the character and relief of the terrain, the drainage system in detail, and man-made developments. They are valuable for planning engineering works of all kinds, including those for irrigation, flood control, hydroelectric power, transportation, soil conservation, and mineral development. The maps are useful not only in the planning stages, but also in the periods of construction and operation of such projects.

The need for topographic mapping in the Missouri River Basin is accentuated by the fact that most of the proposed development projects are in unmapped areas. Continuation of the mapping program is necessary to insure that the maps will be available by the time the planning of projects for any given area is to start. In this way maps will serve their intended purposes most effectively and the need for special surveys will be greatly reduced.

With the funds requested, topographic mapping presently in progress will be continued. Mapping will be completed of 94 7½-minute quadrangles in North Dakota, Nebraska, and Missouri. Mapping will be continued and some individual quadrangle maps will be complete of 432 7½-minute quadrangles and 14 15-minute quadrangles in North Dakota, South Dakota, Nebraska, Colorado, Wyoming, and Montana. These projects also include mapping in the oil and gas fields of northwestern Wyoming to aid in stratigraphic and structural investigations in the search for oil and gas.

GEOLOGICAL AND MINERAL RESOURCE SURVEYS AND MAPPING

Geologic and mineral resource surveys and mapping to be conducted as part of the Missouri River Basin program are concerned with gathering background geologic data important to the development of the basin. These data are intended not only to aid in the appraisal and development of the mineral raw materials themselves, but also to give a basis for appraising the effects of mineral resources and water, power, and related resources upon one another. The geologic investigations also contribute to the overall appraisal of geologic and mineral resources in the United States, a continuing responsibility of the Geological Survey.

Among the investigations scheduled in fiscal year 1956 are studies of the oil and gas potentials of the Williston Basin, of landslides in the Fort Randall area, of phosphate in western Montana, and geologic mapping in the Great Falls and Wolf Point areas of Montana. The Big Sandy and Fort Peck, Mont., and the Republican River and Lower Platte, Nebr., geologic projects will be completed.

WATER RESOURCES INVESTIGATIONS

Adequate information about the quantity and distribution of the surface water supplies, the occurrence and availability of ground water, the sediment loads of streams, and the chemical quality of both surface and ground waters, is indispensable for sound planning, constructing, and operating all types of works for the development and use of the water resources of the Missouri River Basin.

Water-resources investigations scheduled in 1956 under the Missouri River Basin program are essentially a continuation of the program for 1955. The increase in funds requested will permit the resumption of the more important water records that were discontinued in 1954 because of reduction in funds, and the initiation of other water investigations related to development projects. The determination of the feasibility of these development projects depends, in large part, upon information on the availability and quality of the water resources of the area concerned.

The current drought in the southern part of the basin has emphasized the need for more water. There must be efficient utilization of the available supplies from year to year and particularly during periods of drought. Such utilization is dependent upon accurate knowledge of the distribution, quantity, and quality of water in the basin. The 1956 program will enable the survey to improve somewhat its recording of basic facts on drought conditions for future planning purposes and its overall appraisal of the available water resources for their ultimate development.

Mr. RILEY. If you will hit the highlights for us, we will appreciate it.

Mr. REED. I should emphasize that the work of the Geological Survey as part of the Missouri River program is the same sort of work it does everywhere else. We are a basic information agency. Our business is to collect and make available information in certain fields.

In the Missouri Basin, we therefore are doing exactly the same sort of thing as we do all over the country. One of the major functions of the Geological Survey is topographic surveying and mapping. Through this mapping activity there are prepared and made available topographic maps on a systematic basis of the areas within the Missouri River Basin that are deemed to be of greatest urgency for the Missouri Basin development programs.

Secondly, I would mention geologic and mineral resources surveys and mapping. They fall into two groups: (1) The investigation and appraisal of the resources in the basin as a general source of the materials, and (2) the investigation of those materials or geologic factors that may be useful or detrimental in the construction programs of the Missouri Basin. An example of the second group might be landslides as affecting a reservoir or dam.

Thirdly, I would mention water resources investigations. The general breakdown of that activity is as follows: First, the amount

of water that flows on the surface; second, ground water information water beneath the surface of the ground; and thirdly, the quality of the water as to two points, (1) the sediment content of the water and (2) its chemical quality.

The Geological Survey is not concerned with the biological quality of the water.

I believe that briefs the sort of thing that we do. I will be glad to attempt to answer any questions you may have on the funds that are requested for 1956.

Mr. RILEY. Thank you, Mr. Reed.

USE OF APPROPRIATED FUNDS

Mr. DAVIS. We have another instance besides that which I mentioned in the Fish and Wildlife Service, where in the 1954 fiscal year we had the same amount requested as here, last year it dropped down and now we are back up again. What is the explanation of that?

Mr. REED. Because of the reduction a year ago, in fact, over the past couple of years, it has been necessary to reduce the number of stream gaging stations in the Missouri River Basin from 280, which was the number in 1951 through 1953, to 143 in the current fiscal year.

The number of sediment-measuring stations, as another little example, have been reduced because of the reduction in last year's funds from 125 to 28. It is our belief that the reduction simply does not provide sufficient funds to get the necessary information. That is the reason for the increase requested.

Mr. DAVIS. You get a substantial amount of money from the Corps of Engineers, don't you?

Mr. REED. Yes.

Mr. DAVIS. How do you determine your priority of workload in this field? For instance, here the other day in connection with the discussion of Oahe we were told they had to have a great deal more land than they had anticipated. It was a substantial amount. There just weren't any maps of that area. The only maps they had were something that was 50 years old, so they had basically and badly miscalculated the amount of land that was to be flooded there.

What about your general appropriation? Isn't that the kind of thing that you have been doing for many years?

Mr. REED. That is the sort of thing we have been doing for a great many years. On the other hand, we have not been able in most places in the United States to have such maps available and ready when such a problem as Oahe comes along. This is what concerns us very much. It is difficult also for us to separate in some rational fashion the work that should be supported by Missouri River Basin money from those that should be charged to our regular funds in the same area.

There are certain control points that affect these things. For example, we do a great deal of work in topographic mapping and in water resources investigations in cooperation with the States. In those instances, the cooperating unit, the State or municipality, has a measure of control of where you do your work and what you do.

I have a few data on this point, if you would like to have them.

OAHE UNIT

Mr. DAVIS. You gave some indication in your statement about various specific areas that you might cover. Take, for illustration, that Oahe area, stretching a couple of hundred miles, I guess, from Pierre up to Bismarck, isn't it?

Mr. REED. That is approximately right.

Mr. DAVIS. How much time, how much money would be involved in doing the kind of job that would be needed for the Corps of Engineers in order to avoid errors of that kind?

Mr. REED. I don't know how long it would take to do the mapping. I assume you are thinking of the topographic mapping in this case.

Mr. DAVIS. That is one of the things you would do to be able to determine flood areas?

Mr. REED. We would if we could. The difficulty is it takes a number of years to do that type of mapping. You have to outguess these things and get started on it 5 years before they decide they want it. That is not easy.

We determine priorities on a systematic basis, following general rules laid down by the Bureau of the Budget, and also on our own department initiative through the Interior Department field committee. We anticipate these situations as well as we can.

Mr. DAVIS. You would have topographic maps of the State of South Dakota, but not in the detail required to properly calculate flooding for a project of that kind; is that about the size of it?

Mr. REED. We might have, if our anticipation had been correct 5 years ago. Then we would have the maps available as wanted. Frequently we do not. We wish they were more frequently available. For example, since the Missouri Basin program started, there has been covered on what we call 7½-minute sheets, that is, 7½ minutes of latitude and 7½ minutes of longitude, 6,600 square miles in the Missouri River Basin. That is a substantial area.

Mr. RILEY. I understand there are many areas in the United States that haven't had geological surveys yet?

Mr. REED. That is true. Many others have been covered years ago in a reconnaissance fashion and the results are not adequate for present-day needs.

DEVELOPMENT OF MAPPING PLAN

Mr. DAVIS. Pursuing that a little bit further, when was Oahe authorized? Some of these projects, for instance, have been authorized a good many years ago. When a project is authorized for one of the construction agencies, such as the Bureau of Reclamation or the Corps of Engineers, do you take any particular notice of that, or do you wait until one of these agencies puts some information in your hands and tells you to go ahead, that they are probably going to need your services?

Mr. REED. No, sir. In many instances, the mapping is done with our own appropriated funds and not with the other appropriated funds. We often do accept the other agency's funds in order to do a job quicker than it would be done in the normal course of events.

The way this works is that the Bureau of the Budget procedures provide that all of the map-using agencies each year submit to the Bureau of the Budget their anticipated mapping requirements over a number of years. All these things are pooled together and sent to the Survey, where they are considered in what finally comes out as a mapping plan for that particular year.

We therefore have the needs of all the other agencies in mind. It is not always possible to accede to all the needs. In general the selection is made by a duplicating basis. If there are 5 or 6 agencies that want 1 area, that will be selected generally earlier than that wanted by 1 agency. This makes it difficult for a bureau like the Park Service, because many of their areas of interest are national parks, and it means they come up with a one-agency request. Some attention has to be paid to their requirements, also.

RELATIONSHIP TO BUREAU OF RECLAMATION

Mr. PHILLIPS. I am not quite certain that I understand your relation with the Bureau of Reclamation on these projects. Do you come in automatically every time a reclamation project is proposed and submitted to the Congress? Do you come in with a report?

Mr. REED. We try to provide to the Bureau of Reclamation before it makes a report on the project as much basic information on the land and the mineral resources and water resources and mapping material as we can.

Mr. PHILLIPS. You say that you try. It is not automatic. It is not a routine thing for you when a project is started and a bill is introduced, and it goes down to the Bureau for a report, for you to join in that report when it comes back?

Mr. REED. We do provide such information as is available. We attempt to provide adequate information, but sometimes we are unable to do that because the information is not collected.

Mr. PHILLIPS. If it had not been collected, would you start out to collect it automatically, or would you wait and put it on the agenda for some future time?

Mr. REED. We could include the Bureau of Reclamation's needs along with all the other needs, such as those of a State, the Corps of Engineers, and any other need for the type of information.

Mr. PHILLIPS. Here we have a large project called the Missouri River Basin. It has a lot of small projects in it. Would you take those projects individually and investigate the soil conditions, drainage, topography, the fall of water, and so forth?

Mr. REED. Yes, sir. We do that type of work. We do not ordinarily do it on an individual project basis. We would be influenced by a large project that appeared to be coming up like the Oahe; one, let us say, that covers an area where there was an obvious dam site or an obvious need. We would say, "This is an important area. We will consider a mapping program for the next 3 years in this general part of this particular State."

Mr. PHILLIPS. Did you say that you had investigated the Oahe?

Mr. REED. I don't really know. I don't know the details of what we have done on that particular project.

Mr. PHILLIPS. There has been a discussion here this morning concerning the drainage. Apparently, the Bureau's employees feel it

would be impossible to drain an area like that. I presume they got that information from you.

Mr. REED. I would think that is quite likely.

Mr. PHILLIPS. If I read you a list of 5 or 6 projects, would you put in the record whether or not you had reported or not reported on those projects and whether the report was generally favorable on the matter of drainage, soil, and so forth?

Mr. REED. May I ask one question before I jot this down? We would not ordinarily report favorability or unfavorability, but only report the facts——

Mr. PHILLIPS. What would you call a report on a project that the water that is being impounded in the reservoir was too salty to be used on the land? Would you call that a favorable or unfavorable report?

Mr. REED. The wording of our report is that the salinity is such and such. Obviously, it would be unfavorable.

Mr. PHILLIPS. On the Oahe, if the drainage was impossible under any of the conventional methods and too expensive for a project of that kind, would you consider that favorable or unfavorable?

Mr. REED. It would be unfavorable.

EXTENT OF ACTIVITIES ON VARIOUS PROJECTS

Mr. PHILLIPS. Will you put down these names——

Mr. REED. I gather your question is to provide you with the degree of coverage?

Mr. PHILLIPS. I jotted these down while you were talking. The Oahe, Shade Hill, Heart Mountain, Kirwin, Helena Valley, Cedar Bluff, and Glendo.

Mr. REED. I will determine the extent of our coverage in those areas.

(The information requested follows:)

In regard to the status of Geological Survey investigations and data on the Oahe, Shade Hill, Heart Mountain, Kirwin, Helena Valley, Cedar Bluff, and Glendo projects:

TOPOGRAPHIC MAPPING

The staus of topographic mapping on the Kirwin, Kans., water-development project is as follows:

Approximately 50 percent of the area is covered by modern-type mapping.

None of the area is covered by current mapping in process.

Fifty percent of the area is covered by reconnaissance type of mapping at a scale of 1:125,000.

The status of topographic mapping on the Cedar Bluff, Kans., water-development project is as follows:

No existing modern-type mapping is available or in the process of compilation.

All of the area is covered by reconnaissance type of mapping at a scale of 1:125,000.

The status of topographic mapping on the Oahe, S. Dak., water development project is as follows:

Approximately 15 percent of the area is covered by modern-type mapping.

Approximately 25 percent of the area is covered by current mapping in process. Approximately 60 percent of this work is completed.

Sixty percent of the area is covered by reconnaissance type of mapping at a scale of 1:125,000.

The status of topographic mapping on the Shade Hill, S. Dak., development project is as follows:

No existing mapping is available or in the process of compilation.

The status of topographic mapping on the Glendo, Wyo., water-development project is as follows:

One hundred percent of the area is covered by modern-type mapping.

The status of topographic mapping in the Heart Mountain, Wyo., water-development project is as follows:

Approximately 50 percent of the area is covered by modern-type mapping.

Approximately 40 percent of the area is covered by current mapping in process. Approximately 20 percent of this work is completed. None of the area is covered by older type surveys considered adequate for reconnaissance.

The status of topographic mapping on the Helena Valley, Mont., water-development project is as follows:

Approximately 40 percent of the area is covered by modern-type mapping.

Approximately 60 percent of the area is covered by current mapping in process. Approximately 10 percent of this work is completed. None of the area is covered by older type surveys considered adequate for reconnaissance.

WATER-RESOURCES INVESTIGATIONS

The water-resources basic data are generally adequate for proceeding with the development of all the projects. The continued collection of selected water-resources information as contemplated in the budget is necessary for more definite planning of detailed features of the projects as well as for the operation of the projects when they are finished. Such information includes continuing records of the available water supplies, surface and underground, data on ground-water conditions as they affect drainage of irrigated lands and quality of water data as they relate to sedimentation of reservoirs and problems of chemical constituents of the water. Continuing records are also essential to identifying and evaluating the overall long-time effects of the projects on the water supplies.

GEOLOGIC MAPPING AND MINERAL-RESOURCES INVESTIGATIONS

Modern geologic maps are available for a very large part of the seven project areas in question. Most of the geologic maps have been completed and made available within the past 5 years. Geologic maps were completed and made available by the United States Geological Survey on the Kirwin area in 1948 and on the Cedar Bluffs, Kans., project area in 1947. Most of the geologic mapping done by the United States Geologic Survey in these areas was supported by MRB funds. The State Geological Survey of South Dakota prepared geologic maps, among others, of a considerable part of the Oahe Reservoir area, and some areas are covered by older but adequate maps. All of these geologic maps are in general adequate to provide background geologic data for the appraisal and location of mineral, mineral fuel, and construction materials as they relate directly to the construction projects.

Status of geologic investigations in more detail follow:

Published geologic maps are available at a scale of 1:62,500 or larger for both the reservoir and irrigation projects on each of the following projects: Helena Valley, Mont., irrigation project and accompanying Canyon Ferry Dam and Reservoirs; Kirwin, Kans., dam, reservoir and irrigation project; Cedar Bluff, Kans., dam, reservoir, and irrigation project: Glendo, Wyo., dam and reservoir.

Published geologic maps at a scale of 1:62,500 are available for the Oahe, S. Dak., dam and reservoir site and for a part of the irrigation project area. For most of the rest of the irrigation project area there are geologic maps at a scale of 1:125,000 which in this area are adequate to supply considerable background data.

Geologic maps at a scale of 1:125,000 are available for the Shade Hill, S. Dak., dam and reservoir site and mapping at a scale of 1:62,500 is under way on the Shade Hill irrigation project site.

Geologic maps at a scale of 1:62,500 are available for the Heart Butte, N. Dak., dam and reservoir area and at a scale of 1:125,000 for the Heart Butte, N. Dak., irrigation project area.

BUREAU OF INDIAN AFFAIRS

Mr. RILEY. The next agency is the Bureau of Indian Affairs, we will insert page 453 of the justification.

Missouri River Basin Project, Bureau of Indian Affairs

Estimate for construction and rehabilitation

Summarized financial data

Total obligations to June 30, 1954	$2,200,479
Allotment fiscal year 1955	150,000
Prior year balance available	44,264
Total obligations, fiscal year 1955	194,264
Allotment fiscal year 1956	150,000
Total obligations, fiscal year 1956	150,000

Justification

The Missouri River Basin investigations organization is concerned primarily with the basin development plans of the Corps of Engineers and the Bureau of Reclamation, whose programs directly affect 20 Indian reservations in the Billings and Aberdeen areas with a population of nearly 60,000 Indians owning some 15 million acres of land. These programs fall generally into two categories: (1) those which are adverse to Indian interests, such as main-stem reservoirs which require the taking of land and displacement of people; and (2) those which are beneficial, such as irrigation and other resource development projects.

The work of the Missouri River Basin investigations organization will continue to be geared generally to the program developments of these action agencies. Main-stem dams are under construction by the corps at Garrison, Oahe, Fort Randall, and Gavins Point, all affecting Indian lands. Negotiations presently under way between the Indians and the United States relating to the Oahe and Fort Randall Reservoirs involve the acquisition of 178,000 acres of Indian land on 4 reservations, consisting of tribal properties and more than 2,300 separate tracts of individual ownership, nearly half of which are held jointly by from 2 to 99 owners. Flooding of these reservoirs will require moving approximately 500 Indian families, 160 of whom now operate farms or ranches.

General statement

Mr. Flory. My name is Evan Flory. I am Chief of the Branch of Land Operations.

The 1956 program for the Missouri River Basin includes approximately 20 Indian reservations embracing about 15 million acres of Indian-owned land. Nearly 70,000 Indian people live on these lands. The Missouri Basin development program directly affects large areas of these lands, and contains elements which will influence the social and political development of the Indian people.

The Bureau of Indian Affairs' program now underway will provide for proper use and protection of Indian land and water resources and also include land adjustment for the resettlement of Indian families; the location and laying out of homesteads, farms, and ranches; development of plans for the utilization of areas selected by resettled families; and the development of road locations in the areas to be resettled, as well as sites for school, health, and other facilities. It is essential that this phase of work keep pace with other Bureau programs.

The passage of Public Law 776, 83d Congress, for Cheyenne River Sioux Tribe, South Dakota, will entail a tremendous increase in work directly under the Missouri River Basin development program for

the fiscal year 1956. It is estimated that $75,000 will be necessary to start this and other programs for which similar bills have been introduced for the Crow Creek and Lower Brule Reservation.

The application of the $225,000 as applied to the Bureau of Indian Affairs will allow them to carry on a limited program.

The claims of the Indians were along the river and the development of the Missouri River Basin has greatly influenced their mode of life. On the Fort Berthold Dam 78 percent of the people live within the taking area——

Mr. PHILLIPS. How many tribes?

Mr. FLORY. There are about 20 tribes. Within the reservoir areas which will be developed within the next few years, 30 percent of the Cheyenne River Reservation Indians live in the taking area; 25 percent of the Crow Creek and Lower Brule live within that area; and 25 percent of the Standing Rock.

From the Cheyenne that is 186 families; from the Crow Creek, 103; and on the Standing Rock, it is 185 families.

These people from prehistoric times have lived along the river and have learned to run cattle. They didn't provide buildings. Their cattle came off the plans and stayed down in the woodland. They carried on a limited amount of hunting, got their fuel, and were pretty well sheltered from the winds on the plains.

It puts a great problem on us to relocate these people and put them on the plains and undertake a type of economy that is pretty much foreign to what they have been used to carrying on.

Our program was decreased from the original plans we had in 1955. The passage of Public Law 776, giving the Cheyenne Indians $10,600,000 in the 83d Congress, and the problem we have of locating 685 of these people, and with the immediate prospect of the Standing Rock and Crow Creek Indians, puts a load on us that we did not anticipate right at this time and that we are not able to carry on with decreased appropriations, the $155,000 that we had in 1954 and the $194,000 in 1955.

BUDGET REQUEST

We anticipate it will take a minimum of $225,000 in 1956 to anywhere near take care of the additional load we have in relocating and rehabilitating these people who will have to move within the next 3 or 4 years.

Mr. RILEY. Has the Bureau of the Budget taken any action on the $75,000 increase that you requested above the budget that has been submitted?

Mr. FLORY. It has been presented to them.

Mr. RILEY. If they haven't taken any action, I don't believe we could properly consider it. It would have to be authorized by them and probably brought up in a supplementary appropriation.

Mr. FLORY. It was done recently. I am not sure what action they have taken on it. Our budget people advised us it might be in in time for this committee to consider.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. MAGNUSON. Apparently the Bureau of the Budget originally approved $150,000, is that right?

Mr. FLORY. That is right.

Mr. MAGNUSON. How much did the Bureau request at the time the $150,000 was approved?

Mr. FLORY. I don't have that figure for you. I can find out. You mean, an overceiling, if there was an overceiling?

Mr. MAGNUSON. I see from your statement that you are apparently asking for $225,000.

Mr. FLORY. This came up recently after this bill was passed by the 83d Congress, and we began to look into what had to be done. This was submitted recently.

Mr. MAGNUSON. You don't know if you asked originally for $225,000?

Mr. FLORY. I don't believe we did, but I don't know for sure.

IRRIGATION

Mr. MAGNUSON. The Indian families will suffer dislocation and other damage from these projects. Are some of their lands going to be irrigated and enhanced in value?

Mr. FLORY. These Indians live right on the main stream. The bottom lands are pretty well taken up by the flooded areas. There is one small project that hasn't been completely found to be feasible yet on one of the tributary streams, which I think will mean 12,000 or 18,000 acres, which is not much in comparison to the flooded areas along the river.

Mr. MAGNUSON. I see a statement in the justifications which I quote—

On the beneficial side approximately 300,000 acres of reservation lands are included for irrigation development in 40 reclamation uits in the basin, with an additional 65,000 acres to receive additional water.

Mr. FLORY. Some of the tribes up in Montana will have rather extensive irrigation developments. There are different tribes and they are in different areas.

Mr. DAVIS. Off the record.

(Discussion off the record.)

RELOCATION OF INDIANS

Mr. DAVIS. Getting into these amounts in connection with these projects, every time we have dealt with these specific projects, there are included substantial amounts, for instance, in the Oahe, for the taking care of the Indian claims within the reservation. What is the name of that town up there that we have to move, Stockbridge?

Mr. FLORY. Fort Thompson.

Mr. DAVIS. There are also included items for resettlement for the Indians.

Mr. FLORY. Relocation.

Mr. DAVIS. Don't they include such amounts to cover those, or is it the actual administration expense of doing that still something that has to be in your hands?

Mr. FLORY. I think as far as providing for the Indians are concerned, they were well provided for in the Cheyenne River bill. In the Bureau, none of that fund is available for the surveys and for the

laying out of economic units, and for the actual work in getting these people conditioned to moving and getting their consent to moving. All of that is thrown on our present staff, which isn't staffed to do it.

Mr. DAVIS. Even though there has been an agreement made for that purpose, we will say they are legally obligated to move, the actual preparation of it, making the plans for receiving them at their new locations falls back on the Bureau of Indian Affairs?

Mr. FLORY. Yes. One of the difficult problems we have is that heirs haven't been able to sell their allotments, or one heir has not been able to buy out the rest of them. We have a fractionated heir problem that is difficult to settle when these lands are taken. All that has to be done to find out what the proportionate share is, and it is not provided for but falls back on the Bureau. It is an additional problem that we wouldn't have in the ordinary run of business.

Mr. DAVIS. The appropriations are included in these specific projects for settlement of all Indian claims, we will say, but once the money has been cleared by these construction agencies, it is in a lump sum, and then they wash their hands of it. Then you have the problem of actually dividing the money among the proper people within the Indian group and shepherding them along and seeing that they actually do move and relocate in the new spot. That is all.

Mr. PHILLIPS. Are these family tribes?

Mr. FLORY. I can give you the actual figures.

Mr. PHILLIPS. We have the Mission Tribes in my area. They are mostly family tribes.

Mr. FLORY. These are pretty large tribes. In this one, 186 families—this is the one that the bill was passed for, involving 685 people—represents about 35 percent of the tribe.

Their reservation extends a couple of hundred miles out west in the plains.

Mr. PHILLIPS. Thirty-five percent live on the river, you say. That is pretty good land?

Mr. FLORY. It is not developed very much. It has grown up in woodland.

Mr. PHILLIPS. My question is, Will they be satisfied to move away from there and be put upon land that will not be near the river?

Mr. FLORY. They are not too satisfied at Fort Berthold.

Mr. PHILLIPS. What do they get for moving?

Mr. FLORY. They get paid for the land they had down below at appraised value. Then they get a rehabilitation fund that Congress allowed them in this bill to help set them up in a little better condition than they were.

Mr. PHILLIPS. They all have tribal councils?

Mr. FLORY. Yes.

Mr. PHILLIPS. Do they have tribal funds?

Mr. FLORY. Some do and some do not.

Mr. PHILLIPS. Have any of them impounded funds in Washington?

Mr. FLORY. Some do.

Mr. PHILLIPS. Will you draw on that for some of the improvements on the Missouri River Basin?

Mr. FLORY. That is up to the tribes.

Mr. PHILLIPS. I understood you were putting them on land that would be tillable land, irrigated land.

Mr. FLORY. The land that those people go on up there is rangeland.
Mr. PHILLIPS. They are accustomed to raising cattle?
Mr. FLORY. Yes.

TUESDAY, MAY 3, 1952.

BUREAU OF LAND MANAGEMENT

Mr. RABAUT. We will take up now the Missouri River Basin project, Bureau of Land Management, and will insert pages 455 and 456 of the Justifications in the record at this point.
(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, BUREAU OF LAND MANAGEMENT

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarize financial data

Total obligations to June 30, 1954		$3,543,337
Allotment, fiscal year 1955	$200,000	
Prior year unobligated balance	8,622	
Total obligations, fiscal year 1955		208,622
Allotment, fiscal year 1956	200,000	
Total obligations, fiscal year 1956		200,000

JUSTIFICATION

Land classification.—The detail of classification and inventory of the resources of the remaining 20 million acres of public domain in the Missouri River Basin is about 60 percent complete. This estimate will allow for classification of approximately 1,400,000 acres more. This program is tied in closely with the Department's comprehensive program for the development of the land and water resources of the basin. It is essential that the classification program for the public lands be carried on in advance of the resource development program in order that the necessary coordination of land and water uses may be accomplished.

This work for fiscal year 1956 will be carried on in the Montana pumping unit of eastern Montana, the lower Yellowstone unit of eastern Montana and western North Dakota, the Tongue River unit of Montana and Wyoming, and the North Platte River Basin in Wyoming and Colorado. This schedule has been coordinated with programs of other Interior agencies in the basin project.

Cadastral survey.—Cadastal surveys provide horizontal control for mapping purposes and establish legal boundary markers for farm units and for the acquisition of rights-of-way on Bureau of Reclamation irrigation and reservoir projects. The program proposed for fiscal year 1956 is fully coordinated with that of the Bureau of Reclamation.

The program calls for the resurvey and reestablishment of section corners on approximately 260,000 acres on the following projects:

Projects	*Resurvey acres*
North Dakota: Missouri-Souris unit	120,000
South Dakota: Oahe unit	70,000
Nebraska: Lower Platte unit	30,000
Kansas: Wilson	30,000
Webster	10,000
Total acreage	260,000

Mr. RABAUT. I presume you want to make a statement on this project at this time?

Mr. HOCHMUTH. Yes, sir.

Mr. RABAUT. We will be pleased to hear you now.

Mr. HOCHMUTH. Mr. Chairman, my name is Harold R. Hochmuth; I am Lands Officer, Bureau of Land Management, director's staff.

It is the Bureau of Land Management's job, cooperating with the Bureau of Reclamation and other bureaus of the Department of the Interior, to provide land classification and cadastral surveys required by the program of development within the basin.

Land classification: Out of the 340 million acres within the region there still remains in public ownership approximately 20 million acres of unreserved, unappropriated public domain lands. It is the responsibility of the Bureau of Land Management to make the public domain and resources thereon available for the most suitable and productive use and to provide the necessary management, protection, development, and improvement of these lands so long as they remain in public ownership.

With respect to the Missouri River Basin project land classification will include an inventory of vegetative resources and preliminary plans for the development, management or disposition of these lands to permit their maximum contribution to the comprehensive programs for resource development and use. The order of the work will be coordinated with other investigational and other development programs which must proceed concurrently or in advance of land and water resources development and will furnish the basic data indispensable to sound land management. Lands found unsuitable for public programs will be passed to private ownership.

As of the beginning of fiscal year 1956 approximately 60 percent of this land classification job will have been completed. This estimate, $95,000 will allow for classification of approximately 1,400,000 acres more.

This program for 1956 will be carried on in the Montana pumping unit, in eastern Montana, the lower Yellowstone unit and western North Dakota, the Tongue River unit of Montana and Wyoming and the North Platte River Basin in Wyoming and Colorado. This schedule has been coordinated with programs of other Interior agencies participating in the basin project.

Cadastral surveys: It is the responsibility of the Bureau of Land Management to provide the cadastral surveys required by the basin project since it is the only Government agency authorized to make official surveys and resurveys of the public lands. Cadastral surveys consist of careful measuremnt of land areas on the ground, recording of such measurements, and of placing monuments and other boundary markers on the ground. A large part of the resources awaiting development in this area are located where the original survey monuments have been obliterated. Such conditions are retarding the exploratory and planning operations of those charged with the development of the basin.

The interrelated nature of the cadastral surveys program is indicated by the fact that such surveys are required by the Bureau of Reclamation to secure rights-of-way for canals and reservoirs, for laying out farm units and to secure horizontal control for mapping. It is therefore necessary that the cadastral surveys program be kept well in advance of the requirements of the development agencies in order that the work will not be retarded for lack of proper identification of land boundaries.

This estimate of $105,000 will provide for surveying and resurveying and the establishment of section corners on an additional 260,000 acres on the following projects:

State and project:	*Resurvey acres*
North Dakota, Missouri-Souris unit	120,000
South Dakota, Oahe unit	70,000
Nebraska, Lower Platte unit	30,000
Kansas:	
Wilson	30,000
Webster	10,000
Total acreage	260,000

BUREAU OF MINES

Mr. RABAUT. We will take up next the item for the Bureau of Mines and will insert pages 457 and 458 of the justifications at this point.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, BUREAU OF MINES

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1954		$1,286,875
Allotment, fiscal year 1955	$100,000	
Prior year balance available	13,684	
Total obligations, fiscal year 1955		113,684
Allotment, fiscal year 1956	100,000	
Total obligations, fiscal year 1956		100,000

JUSTIFICATION

The Bureau of Mines portion of the integrated Missouri River Basin program is designed to insure that available and potential mineral resources contribute their maximum share in improving the industrial environment, resulting from construction of public works and related changes in the region's economy. Development of mineral resources leading to the establishment of integrated mineral industries are as dependent on water as are the development of land, forestry, and fishery resources. Investigations of mineral resources and of established and potential mineral industries in the region are therefore an important part of the Interior's natural resource development program in the region.

In fiscal year 1956, Bureau of Mines planned projects include the following:

Gypsum (Montana)
Raw materials for a chemical industry (Montana)
Petroleum and natural gas surveys
Research on constitution and properties of lignite
Lignite carbonization assay and research
Annual preparation of statistics on mineral production and to record mineral industry growth
A county-by-county survey of mineral resources and industries in the Missouri portion of the region

Mr. RABAUT. We will be pleased to hear you at this time.

GENERAL STATEMENT

Mr. DUPUY. My name is Leon Dupuy; I am special assistant for Minerals Studies of River Basins, on the staff of the Director of the Bureau of Mines. The mineral industries of the Missouri Basin are becoming increasingly important to the economy of the area. Their water and power requirements are significant. The Bureau of Mines' program is essentially one of service to the Federal water and power construction agencies. As in the past, it provides mineral industry information and is of material assistance to the cooperating agencies in their planning.

Special items in the program for fiscal year 1956 will include: Studies of the gypsum industry and its potentialities for Montana, studies of raw materials for the chemical industry in Montana, basin-wide petroleum and natural-gas surveys; field and laboratory work in connection with the abundant lignite resources of the basin, county-by-county studies of mineral resources and industries in the Missouri portion of the region, and the preparation of certain statistics for mineral production related to the basin economy.

The work on gypsum will include study of the mining, processing, and marketing for the ultimate utilization of the known reserves in Montana. The investigation would be coordinated with the study of raw materials for the chemical industry. Also included in the study of raw materials for the chemical industry would be sources of supply of sodium sulfates from saline lakes and their processing and utilization into recoverable products, and the sources of sulfur and sulfur-bearing natural resources to augment the supply of sulfur for the sulfuric acid industry. In the case of the oil and gas studies, the work would acquire and compile data on the many oil and gas fields of the petroleum industry in the Missouri Basin, and, in particular, the recently discovered fields. The work on the lignite will include studies of carbonization, constitution, and fundamental properties of lignite, lignite storage, and related problems. The mineral industries survey in Missouri will include special studies of salt and clay resources in the area and their relation to water, power, and flood-control projects. The statistical studies will include such augmentation of Bureau of Mines' statistics as may be necessary to provide special basin data.

The program also presumes that a large number of miscellaneous small routine service jobs for reclamation will also be accomplished.

All of the work is designed to insure that available and potential mineral resources contribute their maximum share in improving the industrial environment resulting from construction of public works and related changes in the region's economy. Development of mineral resources leading to the establishment of integrated mineral industries are as dependent on water as are the development of land, forestry, and fishery resources. Investigations of mineral resources and of established and potential mineral industries in the region are therefore an important part of the Department's natural resource development program in the Missouri Basin region.

Mr. DAVIS. Tell us what you do and how you apply this work to the Bureau of Reclamation that justifies an appropriation to them to be transferred in turn to you.

Mr. DUPUY. We act as consulting mining engineers or petroleum engineers, as the case may be, and get the special data that are needed by the Bureau of Reclamation in economic studies connected with their work, or in gathering the data that Reclamation needs in order to know what the effect of their projects may be upon the mineral industry. Also, we do a certain amount of miscellaneous special compilations of statistics separated on a basin or subbasin basis in conjunction with our regular statistical work. It is a mineral production statistical compilation that we would not ordinarily do, because Bureau of Mines statistics are not broken down on a subbasin basis; they are broken down by States, or political subdivisions in compiling our data that comes out of the Minerals Yearbook. So it is necessary to make special compilations on that feature.

One of the things we do is to go out in the field and make a specific study of an area in the vicinity of the projects that are being studied by the Corps of Engineers or by the Bureau of Reclamation and the Department of Agriculture, or any of the other agencies that are working on the Missouri Basin program, getting necessary data concerning mineral industries of an area that they need in their planning. Sometimes the mineral industry provides a market for the power that may be generated, sometimes it needs water. Sometimes we need to go to the construction agency to see if we can get some water for the mineral industry. None of the jobs are very large in themselves; the most of them are relatively small.

Mr. DAVIS. Now in this current year you have had an appropriation of $100,000 and some carryover.

Mr. DUPUY. Yes, sir.

EXAMPLES OF WORK DONE FOR BUREAU OF RECLAMATION

Mr. DAVIS. Give us some specific examples of some of the things you are doing for the Bureau of Reclamation that justifies an appropriation to them and shows you are doing something for them that is beyond what you would normally be expected to do in your agency.

Mr. DUPUY. One of the jobs that we did recently is a study of the lignite that has to do with the integration of the fuel supply, so that in calculating the power potential of that area we can develop a larger and greater amount of firm power in connection with the reservoirs. In other words—where is the fuel to come from?

The lignite of North Dakota, for example, is a little on the low quality side and we have done quite a bit of work, some on our own and some in connection with the needs of the Bureau of Reclamation, and that will provide a means of making that lignite of a better quality by producing what we call char, and there is a byproduct tar produced also. We did a lot of research in Denver on that and have done some in Laramie also.

Other work that is being done is the study of the new oil fields coming in that have a relationship to the economy of the area and to Reclamation's needs in developing water and power. The effect those new oil fields will have on the Bureau of Reclamation's work is being studied today at Bureau of Mines headquarters in Laramie.

We are still working on a job—just about through—of a county by county survey of the northern coal and clay district in Missouri where the Department of the Army needed a little information.

We are requested by the Missouri Basin Field Committee for information. The work is financed by the Missouri Basin project for the reason that, normally, while it might be our regular work to accomplish it, it is so far down the scale in national priority that we might not get to it. Quite often we won't get to it in time to be properly integrated with the work of the other agencies working on the Missouri Basin project. So this was one means to help speed up the work that was of low priority.

Mr. DAVIS. That raises this question and I notice that one of the other agencies that came in this morning gave us about that same statement—"It is not that the work to be done is too much different from what we otherwise would do, but we probably would not just get around to do it in time"—and that the effect of this extra money is to speed the thing up in order to get the thing done in time. That raises the question as to whether or not you are being put in the position that any time some of the other agencies of the Government want you to do some of these things that Congress probably would not consider to be of national interest, you can state to them, "Well, the only way we can do this for you, is for you to go up and get the money from Congress and then we will find a way of getting it done in time."

Does not the handling of appropriations in this manner encourage that kind of an approach to the studies you ordinarily would be doing anyway?

Mr. DUPUY. Probably it encourages it, but probably you will recall we did put this Missouri Basin work in our own request for funds a couple of years ago and Congress ordered us to change it.

Mr. PHILLIPS. And you do not like to get in a rut.

Mr. DUPUY. We would be glad to have it in our own funds, as far as that goes.

Mr. DAVIS. I can recall a bit too vividly that after Korea started we had all of these defense outfits set up and every one of them came in for a big appropriation and they had to get this service from one Government agency and that from another, and the only way they could get it done was for them to pay for it. You would think the Government was not organized for mobilization at all, and the only way it could get organized was to get a fat appropriation to do it.

I wonder if we are not running into the same thing here in relation to reclamation programs and others; if we are not paying for services from other Government agencies here that might well be done under their regular appropriations.

I do not feel, frankly, you have shown us yet any specific things you are doing for the Bureau of Reclamation that justifies one thing that you should not be doing in the regular operations of the Bureau of Mines.

Mr. DUPUY. Well, sir, we have a number of accomplishments that we have made in the jobs we have done. We have turned out 101 special basin reports so far.

Mr. DAVIS. Are these specifically for the Bureau of Reclamation?

Mr. DUPUY. Not necessarily. They are for the Missouri Basin Interagency Committee. It was agreed some time ago that any of the funds we received for Missouri Basin would be available for use on anything in connection with the Missouri Basin project.

Mr. DAVIS. Take the illustration you gave of some of the things you had been working on. You told us about lignite in North Dakota. Have you not been and wouldn't you be studying the potential of that kind of fuel, whether or not you had to decide whether the steam plants to supplement the power of the Missouri Basin could use that kind of fuel? Has not there been a general study of the possibility of that lignite up in North Dakota going into use?

Mr. DUPUY. To some extent, yes, and the part that is taken care of by the field committee's work covers other phases. Some of the work paid for by the Bureau of Mines is more or less in the realm of pure research, and so forth. One of the jobs we did in connection with lignite up there that we completed was devising a successful method of storing large amounts of lignite without fire occurrence, in connection with the construction of Garrison Dam in North Dakota. Before we devised this method, which was financed in this way, it was not considered possible to store that lignite without it catching fire by spontaneous combustion. There was quite a bit of lignite in that vicinity, as you know. That system of storing lignite, of course, will be of advantage to the industry as a whole eventually; but it was just a problem there as to whether they would have a smoking heap out by the dam, or whether they would have a way to store the lignite. Steam drying of lignite was considered at first in making that study, but dropped in connection with Garrison Dam. Other phases of steam drying indicated that a process to produce an improved lump non-slacking fuel were attractive. They will be reported on very soon. We carried some of that work on our own funds.

Then, also, in the Missouri Basin area, we have had a study going on that was completed and reported on not too long ago, on the mineral operations and occurrences in northwestern Kansas. Much of that involved sources of usable aggregates and sources of supply for raw materials to make pozzolana cement.

Then there was another survey in Nebraska, of a similar nature.

We turned out a number of interim reports on these surveys for the benefit of the planning agencies. We would not ordinarily be doing those jobs, because we have other things of much higher priority that would require our attention.

FUNDS OBLIGATED, FISCAL YEAR 1954

Mr. DAVIS. Can you isolate these funds that are covered in this appropriation to those projects, or is this just extra money added to the till of going research projects of the Bureau of Mines?

Mr. DUPUY. We do keep a separate account of Missouri Basin funds. We try not to divide the funds up into too small amounts, because that does not make for good efficiency on the bookkeeping end of it. But on this particular list here, I do not have a breakdown of the specific items by so many dollars each, because we do not exactly know how much each one of those individual items is going to cost us. They will vary quite a bit according to the success we have in the field and we try to lump the projects in groups. In that way we get a better use of our money and a better return for it.

Mr. DAVIS. Well, let us see. In the 1954 fiscal year, which is over, you had $110,000. Can you tell us pretty well where that money

went? I do not mean right at this minute, but do you have some records that will show?

Mr. DUPUY. Oh, yes.

Mr. DAVIS. Suppose you do not give us a long list that will take up several pages, but there must be a pretty good breakdown of where the $110,000 was allotted.

Mr. DUPUY. That is right.

Mr. DAVIS. Will you submit that for the record?

Mr. DUPUY. Yes, sir.

Mr. RABAUT. Without objection, it will be incorporated.

(The matter referred to follows:)

Funds obligated by Bureau of Mines in Missouri Basin work, fiscal year 1954

Power division: Survey of metallic and nonmetallic minerals and solid fuels	$3,168
Cement industry feasibility study in Montana	3,741
Special phosphate study to provide information concerning resources, production methods, products, requirements and markets of phosphate industries in Montana	8,449
Aluminum: A study to compile information on location, reserves and composition of aluminous resources in Montana as potential sources of aluminum	2,450
Lignite storage at Garrison Dam Lignite utilization Lignite assays A report in process Processing of North Dakota and Wyoming Coals for Thermal Power in the Missouri Basin	5,384
Petroleum and natural gas in the Missouri Basin: A report was completed on Petroleum and Natural Gas Resources in the Powder River Division of the Missouri Basin. A similar report was in process on the Cheyenne Division and another on the Williston Basin	23,523
Utilization of titaniferous magnetite (a study of reserves, mining and processing methods and costs in recovering iron, titanium, and vanadium, and an economic evaluation of the potential industry in Wyoming and Colorado) Compilation of data on limestone and gypsum sources and production in the Wyoming and Colorado portions of the Missouri Basin	7,530
Lignite studies at Laramie	13,932
Preparation and publication of Volume II of Black Hills Mineral Atlas Study of lightweight aggregates Completion of report on feasibility study for producing nitrogen in North Dakota Review of aluminum industry of the United States and its relation to Missouri Bason Preliminary study of anorthosite occurrences and their relation to water and power development	32,972
Mineral industry statistical studies	6,621
Miscellaneous reports (completed): Sun Teton division mineral report Chromite report Crystal Mountain pegmatite report	1,213
Mineral resources in Missiouri: Reports prepared on mineral resources Northern Fire Clay District of Missouri, and also the Southern Fire Clay District of Missouri. Field work started for report on Mineral Resources of the Northern Coal and Clay district of Missouri	12,970
Supervision (Washington)	7,391
Total obligated	[1] 128,821

[1] Includes $110,000 allotted fiscal year 1954 and $18,821 of funds carried over from 1953.

Mr. PHILLIPS. What are you going to do with all that lignite?

Mr. DUPUY. I could not tell you. There is loads of it there; there is enough for a good many years.

Mr. PHILLIPS. In breaking down lignite, the economic key is the disposal of the byproducts, is it not? If you cannot dispose of the by-products, you cannot afford to store your lignite?

Mr. DUPUY. To some extent, use. Under this new char process of ours, that is the hope, that we have a market for the by-products. We do have a market for the char.

Mr. PHILLIPS. Have you a market?

Mr. DUPUY. For the byproducts?

Mr. PHILLIPS. Yes.

Mr. DUPUY. We do not have a market developed yet, no. We are still doing research on our own—not with Bureau of Reclamation money.

VALUE OF WORK

Mr. PHILLIPS. I am trying to find out what the value of all this is that you are asking for. Do you go to the Bureau of Reclamation in an area and say "We are going to take care of all that area for water, reclamation, irrigation, flood control, if the Corps comes in; then Wildlife comes in and takes care of the fish and ducks; then the Bureau of Mines come in and digs around the ground to see what is down then; then Land Management comes in, the Indian Bureau comes in and moves the Indians out of the way. And what do you have when you get all done; what do you have as a result of your $100,000 in an area that has direct relation to the original Basin project, that you would not have done anyway? What are you going to tell the people in the area? You have been testifying about lignite, now, ever since 2 o'clock, and what are you going to do with all of this lignite now that you have it?

Mr. DUPUY. The main information the Field Committee is after is what are the future potentials and what are the possibilities in the area. That is what we are trying to give them—some forecast data. Lignite is only a small part of our work; we have other jobs in the area, too.

Mr. PHILLIPS. You tell me, then, of all the things you have testified to or have not testified to in this particular request for an appropriation, which of those examinations has to be done in the next fiscal year which could not be just as well done the fiscal year after, or after that—mañana a mañana?

Mr. DUPUY. On the question of listing of priorities, the Field Committee determines the priority. We follow their desires as best we can. They consider that on this list the work on gypsum in Montana was needed the most. That is for the fiscal year 1956.

Mr. PHILLIPS. How much of the $100,000 goes to that?

Mr. DUPUY. I do not recall that exactly.

The next most important was the related problem which would be integrated with it, probably done by the same crew, which has to do with raw materials for a chemical industry in Montana.

Mr. PHILLIPS. Is a chemical industry in existence, or is this a projected chemical industry?

Mr. DUPUY. This is a possible chemical industry—raw materials that might be the basis of a chemical industry in supplying a market for power.

Mr. PHILLIPS. Is it under a planned economy for Montana?

Mr. DUPUY. It is a possible new industry.

Mr. RABAUT. Did I understand you to say you do not know how much money is required for a certain activity?

Mr. DUPUY. Those are grouped. I do not know exactly what each one of them is going to cost. The two, together, gypsum and the chemical industry study, probably will be run together and be authorized in one unit. I do not recall the exact amount for each one of them.

Mr. PHILLIPS. How much for the two of them together?

Mr. DUPUY. It is in the neighborhood of about $25,000. I would have to check that.

Mr. PHILLIPS. You still have to justify $75,000 more.

Mr. DUPUY. The next most important thing is a basin-wide petroleum and natural gas survey.

Mr. PHILLIPS. Does that have to be done next year?

Mr. DUPUY. We think it does.

Mr. PHILLIPS. Who thinks it does?

Mr. DUPUY. The Missouri Basin Field Committee. As I say, we establish our priorities on the basis of the requests from the Field Committee.

Mr. PHILLIPS. That is their No. 2 priority?

Mr. DUPUY. Yes, after the gypsum and raw materials for the Chemical Industry.

Mr. PHILLIPS. How much does that come to?

Mr. DUPUY. That is another $25,000 or $30,000, approximately. Then next comes some field and laboratory work in connection with lignite which still has to be done.

Mr. PHILLIPS. But you cannot dispose of the byproducts, so that there is no use working on lignite yet awhile, and you can let it wait a couple of years.

Mr. DUPUY. We are working, too, with Bureau of Mines money on the byproducts and I think we are getting somewhere. I am not prepared to give any technical information on it, because I just do not have it myself.

Then next there are some county by county surveys.

Mr. PHILLIPS. What do they lead to?

Mr. DUPUY. The surveys are primarily investigations of and recording of locations of mineral deposits and industries, and to provide a basis for study of their needs and requirements. Also to find out how they affect the basin project.

Mr. PHILLIPS. Why should the Bureau of Mines be interested in locating industry in a county in Montana; why should not that be done by the State government or the county government?

Mr. DUPUY. Because it is not.

Mr. PHILLIPS. It is not done?

Mr. DUPUY. No.

Mr. PHILLIPS. Do you mean anything that a State or county does not do, we are obligated to go in and do?

Mr. DUPUY. The construction agencies have to get the data from somewhere and if it does not exist we go after it insofar as the Nation's

interest in minerals is concerned. In some States they do have pretty good records; but in most of the Missouri Basin States they do not have, especially data on locations. For example, not too long ago, in one particular area, we checked the literature on the existence of certain properties, and industries. It was of an area that had never been studied by the Bureau of Mines particularly. There had not been any particular problems there. We were asked to check the mineral situation and we found approximately 100 percent more mineral properties that had been operated than were recorded in the literature.

Mr. PHILLIPS. I can see the reason why you would go into an area to discover the kind of minerals that were in existence in the area; but I cannot see why you would interest yourself in whether industry should come into a county or a State and settle down there. Is that a Federal obligation?

Mr. DUPUY. I do not quite follow you.

Mr. PHILLIPS. I may have misunderstood you. I think you said you were going in with the idea of interesting industries to go into certain counties.

Mr. DUPUY. No, sir. I did not say we were going to interest industries in coming in; I said we were going into Montana to study sources of supply of raw materials for a possible chemicals industry. In other words, the question has been raised: can it be established? We need to know if we have the mineral resources that are necessary. It is necessary to do quite a little checking in the field in order to ascertain such information.

Mr. PHILLIPS. Does that exhaust your $100,000 figure?

Mr. DUPUY. Just about.

NATIONAL PARK SERVICE

Mr. RABAUT. The next one is the National Park Service. Without objection, we will place in the record pages 459 through 463 inclusive at this point.

(The matter referred to follows:)

MISSOURI RIVER BASIN PROJECT, NATIONAL PARK SERVICE

ESTIMATE FOR CONSTRUCTION AND REHABILITATION

Summarized financial data

Total obligations to June 30, 1954	$2,082,797
Allotment, fiscal year 1955	180,000
Prior year balance available	7,203
Total obligations, fiscal year 1955	187,203
Allotment, fiscal year 1956	230,000
Total obligations, fiscal year 1956	230,000

JUSTIFICATION

Recreation plans and surveys, $85,000.—The amount is the same as allocated for the 1955 fiscal year. The program and responsibilities of recreation resource "Recreation plans and surveys" includes continuation of the comprehensive basin-wide recreation resource survey of the basin; investigation and planning of recreation aspects of water-control projects under agreements with the Bureau of Reclamation and the Corps of Engineers; the negotiation and preparation of agreements with Federal, State, county, and local governmental units

covering administration of recreation areas at Bureau of Reclamation reservoirs; and to meet obligations of the service to furnish advisory assistance under reservoir recreation agreements now in effect.

One of the prime objectives of the basin-wide survey is to prepare a comprehensive plan and report to serve as guide to the States and other interested governmental units for the preservation, development, and use of recreation resources. The basin-wide recreation studies have been and are well behind comparable studies of the engineering, irrigation, power, flood control, and fish and wildlife aspects which are setting the pace of the resource development program in the basin. Until this plan is completed, all investigations and planning for recreation aspects of specific water-control projects, all development proposed, the determination of appropriate administering agencies and negotiations with those agencies must continue without proper foundation.

In a large and complex development program, such as the current one in the Missouri Basin, sound recognized planning principles fully support the need to accelerate the recreation basin-wide survey and place it, as soon as possible, in a parallel position with studies for the development of other resources involved. Continued on the present basis, the report is planned for completion by December 1956.

To fulfill the service's responsibility in the water resource development program, it will be necessary to study and report on the recreation aspects of 18 specific water control projects. The program is conducted in connection with Bureau of Reclamation and Corps of Engineers activities to provide those agencies with reports, plans, cost estimates, benefit evaluations, etc., on the recreation aspects of each project. Following are the specific water control projects involved:

Bureau of Reclamation Projects (11):	Corps of Engineers Projects (7):
North Platte Basin	Possibly—
Big Horn	Oahe
Mount Evans	Gavins Point
Colorado-Big Thompson (Projects within MRB)	Garrison
Longs Peak division	Plus 4 undetermined sites in Iowa, Minnesota or Missouri
Lavaca Flats	
Ainsworth and Farwell units	
Nelson	
Wilson	
Lovewell	
Yellowtail	

The service will prepare the recreation portion of the reservoir management plan, will negotiate with appropriate agencies to administer recreation areas at reservoirs, and will provide subsequent advisory assistance to States or their political subdivisions in connection with the following reservoirs:

Glen Elder, Kans.	Tiber, Mont.	Sherman, Nebr.
Wilson, Kans.	Fresno, Mont.	Webster, Kans.
Lake Minatare, Nebr.	Nelson, Mont.	Glendo, Wyo.
Pactola, S. Dak.	Merritt, Nebr.	Ocean Lake, Wyo.

Archeological and historical surveys and excavations, $145,000.—Pursuant to the Historic Sites Act of August 21, 1935 (49 Stat. 666), the National Park Service is responsible for conducting a program for recovering irreplaceable historical and archeological resources from nationwide water-control projects of the Bureau of Reclamation and the Corps of Engineers prior to flooding or other destruction. The Congress attempted to safeguard the irreplaceable archeological records on public lands by the enactment of the Antiquities Act of 1906 (U. S. C. 16, sec. 432, 433), which prohibits the exploitation of such materials. The construction now of nationwide water-control projects under Federal auspices makes it urgent that the Federal Government salvage representative portions of these irreplaceable scientific data.

In both fiscal year 1954 and fiscal year 1955 funds for this activity were reduced to $95,000 per fiscal year, an amount entirely inadequate to keep abreast of the vitally important salvage of scientific data from reservoir areas under construction by Federal agencies. For example, in Fort Randall Reservoir alone, during that time 28 known Indian sites of great importance, all recommended for excavation by the Smithsonian Institution, went under water without any investigation of them being possible at all.

Many of the local and state institutions in the Missouri Basin have been actively engaged in some of this necessary archeological salvage work. Many of these institutions have qualified personnel and other facilities with which to carry out this work, but lack the funds for hiring of labor and other necessary field expenses. Since 1950, this Service has been carrying out a program of cooperative agreement with these institutions by which this Service has contributed $102,750 in funds, and the local institutions have contributed $73,148 in cash and equivalent services. Without this Service being able to contribute substantial amounts to these cooperating institutions, the interagency archeological salvage program will suffer even more seriously. The local institutions are incapable of assuming this entire program by themselves, either from the viewpoint of personnel, funds, or time.

The Smithsonian Institution, however, has been cooperating in this program on a full-time basis since its inception in 1946. During the fiscal years 1954 and 1955, in addition to carrying a small contract program, this Service, because of its limited funds, was able to transfer to the Smithsonian only $116,500. This meant that the Smithsonian had to make a serious reduction in their personnel and services and were unable to keep up with their long-range program of carefully planned excavations and studies.

The increase of $50,000 would help greatly to investigate and test those sites scheduled for inundation in calendar years 1955 and 1956.

The amount of $145,000, though not a large sum, will be utilized on a few of the sites where work must be accomplished soon or lost forever. Those sites are as follows:

1. *Oahe Reservoir, N. and S. Dak., $66,000.*—Although Oahe Reservoir is now under construction, it does not close and start flooding until 1959, but initial surveys (not as yet completed) have revealed 318 sites, of which the Smithsonian has recommended 212 for testing and partial excavation. Further survey, in the upper ends of the reservoir, which will flood last, will doubtless reveal other sites which should be investigated. The salvage task in Oahe is so tremendous that even under the best of conditions it might not be possible to accomplish the 10 percent of salvage regarded by the interagency archeological salvage program as being the basic minimum necessary. The sum of $66,000 would allow this Service and the Smithsonian Institution to properly test and evaluate only 15 to 20 of the 212 sites so far recommended.

2. *Garrison Reservoir, N. Dak., $20,000.*—This reservoir, now filling, contains 143 sites of which the Smithsonian recommended 28 for partial excavation. These 28 investigations are only 36 percent currently complete, and it is estimated that full pool level of 1,825 feet will be reached by June 1956. Fiscal year 1956 represents the last opportunity to recover a small portion of this scientific data before it is totally destroyed.

3. *Fort Randall Reservoir, S. Dak., $14,000.*—This reservoir, which has been constructed and is now almost completely full, is expected to reach pool elevation 1,340 feet by end of July 1954. Conservation is 1,350 feet. Joint use pool of 1,365 feet fill be reached by October 1956. There are 10 more sites which will be flooded by conservation pool, and 9 others which will be damaged by high floodwaters by this time in 1956. Investigations of these sites should be completed during fiscal year 1956 before the sites are damaged or flooded.

Twenty-eight sites, recommended for excavation have already been lost through flooding in this reservoir without any investigation being made. Others will be lost during the spring runoff of 1955.

4. *Tiber Reservoir, Mont., $20,000.*—Now under construction, Tiber Reservoir is expected to start flooding in 1956 and will be full by 1958. The Smithsonian Institution's preliminary survey revealed 53 sites of which they strongly recommended 11 for excavation and further investigation. This is an area in which many of the sites are buried under 7 or 8 feet of sterile overburden and require much time and labor in properly exposing them. Many of these sites may relate to the story of the earliest prehistoric man in this country and might be of great scientific importance. So far, only one of these sites has been investigated, and it is important that more should at least be tested before the floodwaters obliterate them forever.

5. *Glendo Reservoir, Wyo., $15,000.*—Construction on this reservoir is scheduled to start early in the spring of 1955. Preliminary surveys by the Smithsonian Institution have shown there are at least 43 sites in this area, 12 of which they have recommended for further investigation and excavation. Closure of the dam is scheduled in 1958 and full flooding in 1959. It is imperative that the

necessary excavations be scheduled over the next several years in order that this material may not be lost. The sum of $15,000 in fiscal year 1956 can accomplish about one-third the necessary work.

6. *Wilson Reservoir, Kans., $5,000.*—This reservoir contains several cave and shelter sites, likely to have perishable material in them not found in more open sites elsewhere. Preliminary surveys by the Smithsonian disclosed 12 sites in this area, 2 of which are cave sites, 1 a shelter site, 1 other is located on the dam axis and will be destroyed first.

7. *Merritt Reservoir, Nebr., $5,000.*—Construction on this reservoir will commence in the spring of 1956. As yet, no full survey of the area has been made, though preliminary inspections indicate that it may well contain numerous vital remains of an archeological nature. The sum of $5,000 is requested with which to make an adequate survey and investigation of this area in advance of construction so that any excavation which may develop can be scheduled in keeping with the construction schedule.

GENERAL STATEMENT

Mr. RABAUT. Who is going to make the statement?

Mr. LEE. My name is Ronald F. Lee, representing the National Park Service.

Mr. RABAUT. We will be pleased to hear you at this time.

Mr. LEE. I have a very brief statement here which I will paraphrase a little.

The work of the National Park Service in the Missouri River Basin under this appropriation is in two parts. One deals with the use of reservoirs for recreation; the second is the recovery of irreplaceable historical and archeological resources in the basin before they are flooded.

Our estimates are geared to the programs of the construction agencies. The 1956 estimates of $230,000 are essential to keep abreast of the resource development programs being carried out by the Bureau of Reclamation and the Corps of Engineers.

One of our objectives is the completion of the basinwide plan for the Service's development of the basin's outdoor recreation resources. We are progressing with this phase of the study and expect to have it completed during the 1957 fiscal year. We will use a portion of our resources towards investigations and planning in connection with the individual reservoirs and to arrange for their development and management for recreation purposes.

The archeological salvage program, for which the Service is responsible under the Historic Sites Act of 1935 and the Antiquities Act of 1906, is being carried out in cooperation with the Smithsonian Institution. Many local and State institutions in the Missouri Basin have been actively engaged in archeological salvage work on a cooperative basis. However, they are incapable of assuming the entire program, either from the viewpoint of personnel, funds or time, and this Service represents the Federal Government in augmenting their efforts in salvaging representative portions of scientific data prior to flooding.

That completes my statement. I would be glad to answer any questions members of the committee have.

Mr. DAVIS. Generally I think I understand the type of work you carry on in this connection, but how well can you isolate these funds that are chargeable to the Bureau of Reclamation?

Mr. LEE. Well, we carry on very little work of this kind in the Missouri River Basin, except this work for the Bureau of Reclamation. Our other program in the Missouri River Basin consists of operating units of the National Park System there—Yellowstone, Glacier and Grand Teton National Parks and other areas. While we do have some cooperative work with the States, this program stands pretty much on its own feet.

STATE CONTROL AND MAINTENANCE

Mr. DAVIS. Frequently in connection with these reservoirs, as I understand it, an effort is made to turn that area over to the State for State control and State maintenance. Do you participate in the decisions of that kind, as to whether you shall or not?

Mr. LEE. We participate in the decisions and in the making of arrangements with the States. There have been completed some 21 agreements with 7 of the States and two county and city authorities for the management, maintenance and operation of reservoirs throughout the basin area. And this appropriation will provide for the continuation of that kind of negotiations. We have 12 reservoirs in process now, or that will be in process during the next fiscal year, going into that sort of a management plan.

Mr. DAVIS. In other words, here is, we will say, the Oahe Reservoir that is in process: As they begin to get along towards the end, we will say, the Corps of Engineers will come to you and say, "Now, here is an amount of land which is Government-owned, a good share of it, bordering on this reservoir. You make a study of that and make some recommendations as to how that ought to be handled to get a maximum recreational purpose out of it." Is that about the type of thing you do?

Mr. LEE. That is correct, sir. There is some difference between the service we perform for the Corps of Engineers and the service we perform for the Bureau of Reclamation. We participate further in the management plan with the Bureau of Reclamation than we do with the Corps of Engineers; but we are asked by the Corps to help them in determining the best sites for recreation development, for cabin sites, picnic grounds, camp grounds, and so forth.

Mr. DAVIS. Ordinarily, is not the Park Service, as such, engaged in this search for recreational areas? Supposing, we will say, Wyoming, with an awfully large amount of public-owned land, comes in; as part of the job of the Park Service do you say, "We will look around in there as a routine proposition for places that ought to be preserved for recreational or historic purposes"?

Mr. LEE. We have devoted almost all of our resources to the maintenance and operation of the national park system; yet, as bills are introduced in Congress which raise a question about a particular area, we investigate it. We do have authority under the legislation of 1936 to engage in general planning work in the field of recreation, but we have had very limited funds for that type of work. And in the Missouri River Basin, I would say this item covers practically all planning work of that type that we are carrying on, except for individual investigations as they might arise when somebody suggests a project.

Mr. RABAUT. Tell me what the condition is of the Colorado-Big Thompson that has been under consideration for a long time. Why is that in here; why should not that have been finished long ago?

Mr. LEE. I am unable, Mr. Chairman, to give you very much information on that. I know studies have been made of the Colorado-Big Thompson by the National Park Service and I believe this item is for the very last steps; because I am sure I would agree with you that the work must be very nearly completed.

Mr. RABAUT. Is there anybody here who knows anything about it?

Mr. LEE. There is a Mr. Freeman of our staff with me here who may be able to tell you, if I may call on him.

Mr. RABAUT. All right.

Mr. FREEMAN. We have completed our planning work on the Colorado-Big Thompson with the exception of continuation of negotiating for State and local agencies to administer and operate the completed reservoirs.

Mr. RABAUT. Is it not true when those areas begin to have your attention that immediately people come to them?

Mr. FREEMAN. Very much so.

Mr. RABAUT. Well is it not possible that it is almost a perpetual job; that until you have them all finished, have the things in your program all done, the State's delay in accepting it, because the States want to get it as perfect as possible and let Uncle Sam pay the bill?

Mr. FREEMAN. Of course the only money we are devoting to the Colorado-Big Thompson, which is a very small amount out of the moneys in this appropriation, are simply for negotiation work with the State. In this case, it is primarily with the Fish and Game Commission of the State of Colorado and the local counties.

Mr. RABAUT. How much do the State or counties contribute toward the general preparation of those grounds?

Mr. FREEMAN. In dollars and cents?

Mr. RABAUT. I mean percentagewise.

Mr. FREEMAN. In the actual preparation of the grounds, they do not contribute anything until they actually sign an agreement to run them.

Mr. RABAUT. And they won't actually sign an agreement to run them but will leave you holding the bag until you get them in a state of perfection, in spite of the fact that people come in from time to time and do a lot of damage and then you are everlastingly preparing the grounds. Now this stuff ought to get more dispatch.

Mr. FREEMAN. That is our main effort, to get them into State and county hands.

Mr. RABAUT. That is why I asked about this one, because it has been hanging around for a long time and as long as it is not finished you are still responsible for it. Am I right?

Mr. FREEMAN. Until we can get some State or county agency to administer it.

Mr. RABAUT. Is there any set time for these agreements to expire and the States either have to come in or to stay out?

Mr. FREEMAN. No, not that I know of.

Mr. RABAUT. How long do some of them drag along?

Mr. FREEMAN. The Colorado-Big Thompson is being finished very rapidly and as of today, Lake Estes has been signed; the town of Estes Park has signed to administer that area, and the Willow Creek Reservoir has been taken over by the Colorado Fish and Game Commission.

(Discussion off the record.)

Mr. PHILLIPS. Are these projects which are in existence now, or are they in the process of construction, or are they contemplated, these projects, or whatever you call them, that the Park Service has to do with in connection with the general development?

Mr. FREEMAN. The work we are doing on the Colorado-Big Thompson project is on existing projects, but in the past we worked along with the Bureau of Reclamation while they were building the project.

Mr. PHILLIPS. I am not familiar with this broad area. Are these recreational areas being installed for the first time?

Mr. FREEMAN. No, this is new.

Mr. PHILLIPS. How many of them are ready to operate?

Mr. FREEMAN. I am afraid you would have to ask the Bureau of Reclamation. I could not answer the question as to just how many reservoirs in the Colorado-Big Thompson area are ready to operate.

Mr. PHILLIPS. I mean parks.

Mr. FREEMAN. You mean with facilities?

Mr. PHILLIPS. Yes.

Mr. FREEMAN. We have not installed any facilities in the Colorado-Big Thompson project except at Shadow Mountain Reservoir.

Mr. PHILLIPS. Nowhere in the whole basin you are testifying about?

Mr. FREEMAN. In the Missouri Basin?

Mr. PHILLIPS. That is what you are testifying about, is it not?

Mr. FREEMAN. I thought we were talking about the Colorado-Big Thompson project.

NEGOTIATION OF AGREEMENTS FOR LOCAL CONTROL

Mr. PHILLIPS. You show here Bureau of Reclamation Projects 11, and Corps of Engineers Projects 7, and I understood you to say that you propose to put recreational facilties, or some facilities, under the supervision of the National Park Service in each one of these projects.

Mr. LEE. May I reply to that, sir?

Mr. PHILLIPS. Yes.

Mr. LEE. The plan is not that the National Park Service will install these facilities, or operate the facilities in connection with these reservoirs. There are 21 reservoirs which are completed, and regarding which agreements have been executed with the States for State or local management and operation for recreational purposes.

Mr. PHILLIPS. Then why are you up here today?

Mr. LEE. There are 12 in this coming fiscal year which will be completed, and regarding which agreements should be executed.

Mr. PHILLIPS. Why are you up here today?

Mr. LEE. Because we participate both in the planning of the facilities and in the negotiation of the agreements with the States or with the local authorities.

Mr. PHILLIPS. That is only in the preliminary stages, and you have no further interest in them after they are turned over to the States?

Mr. LEE. Under the provisions of the agreement we assume certain services. For example, in the installation of a campground we will give advisory service in regard to that campground.

Mr. PHILLIPS. That does not cost $235,000, does it?

Mr. LEE. No, sir. Out of this total of $230,000, $85,000 is for the recreational planning and the execution of these agreements, and the following up of the agreements after they are executed.

Mr. PHILLIPS. You can get a lot of advice for $85,000, where city folks are to go fishing in that area.

Mr. LEE. There is quite a bit of work involved in making a recreational area ready in connection with one of these reservoirs.

Mr. PHILLIPS. There is no construction involved.

Mr. LEE. Some of them are very extensive. Oahe, for example, is 200 miles long.

Mr. PHILLIPS. There are how many miles of reservoir?

Mr. LEE. That is the total length of the lake. They have a shoreline that goes in and out for many miles.

Mr. PHILLIPS. You are developing the shoreline for 400 miles?

Mr. LEE. At least 400 miles will have to be studied in order to select sites which are suitable for recreational purposes adjacent to the reservoir.

Mr. PHILLIPS. And you think that will cost $85,000?

Mr. LEE. When you consider that in the basin as a whole there are scores of reservoirs that is not an excessive amount.

Mr. PHILLIPS. How many of these reservoirs will be actually finished in the fiscal year 1956?

Mr. LEE. That is a question that I will have to provide the answer to for the record. I do not know.

(The matter referred to follows:)

There are 134 reservoirs on which the National Park Service will have completed recreational studies, exclusive of working out management agreements with State and local agencies to operate the areas, and including the 18 scheduled in the 1956 program. This would be an average cost of less than $9,000 per project.

Mr. PHILLIPS. But you knew enough to ask for $230,000.

Mr. LEE. Well, there are 18 projects that we will study in the next fiscal year.

Mr. PHILLIPS. Eighteen projects?

Mr. LEE. Yes, sir. You mentioned 11 Bureau of Reclamation and 7 Corps of Engineers projects. Then besides those 18 there are 12 other projects which are completed, and regarding which the working out of these management agreements will take place during the coming fiscal year.

Mr. PHILLIPS. Why was not Mr. Rabaut's question a very good one? How soon are you going to tell the States that they have to fish or cut bait?

Mr. LEE. We are very anxious about that, and we appreciate Mr. Rabaut's question and these other questions because it is a problem to get the States to take their share of the responsibility.

Mr. PHILLIPS. Is this the amount of money the Park Service has spent in this fiscal year?

Mr. LEE. No, sir.

Mr. PHILLIPS. Would you figure up for me how much you have already spent, and how much we have already given you in this fiscal year?

Mr. LEE. I think I have that here, Mr. Phillips.

Mr. PHILLIPS. And will some representative of the Bureau of Reclamation tell me how many of these reservoirs will be completed in the next fiscal year while he is figuring that up?

Mr. CROSTHWAIT. Eighteen.

Mr. LEE. The total is $1,027,000 on the recreational service.

Mr. PHILLIPS. How much more will you have to have before this work is completed?

Mr. LEE. I do not have that estimate.

Mr. PHILLIPS. Does the $1,027,000 include the $230,000 to which you previously referred?

Mr. LEE. No, sir; and let me make clear that in addition to that $1,027,000 which was appropriated during the last 8 years for recreational plans and surveys we have also had appropriations of $1,062,000 for the recovery of archeological material.

Mr. PHILLIPS. Mr. Chairman, that is about $2,500,000 that has been spent or will be spent on 18 projects; is that right?

Mr. LEE. You are speaking of the 18?

Mr. PHILLIPS. Or that will be ready this year, 18 projects, and you will have spent by that time $2,500,000?

Mr. LEE. Well, there are 21 agreements covering the operation of at least 21 projects, and I think the total number of projects covered is larger than 21, but I do not know exactly how many it is.

Mr. PHILLIPS. It is still $100,000 a project.

Mr. LEE. Yes, sir, that is correct, if you divide the total amount by 21, but that is not the full story.

Mr. FREEMAN. We have reported on and studied over 100 reservoirs in the Missouri River Basin which part of this money was spent for.

Mr. PHILLIPS. I think you could make a pretty good study for a $100,000 average.

Mr. FREEMAN. In addition to that, of course, we carry on with the agreement work. There is no construction money involved in it at all.

Mr. PHILLIPS. That is my point. All that we have is a study and a little advice. You have not even advised the States to hurry along and take this over.

Mr. LEE. I believe that we have been trying very hard to get the States to carry their responsibilities. I do not know whether you would care to take the time to examine them, but I have some pictures here that illustrate the nature of the problems that we are faced with. People just crowd around these reservoirs when they are open. Here, for example, is the sort of thing that goes on.

Mr. PHILLIPS. What sort of advice did the State get for $100,000, to keep the people away from the reservoirs?

Mr. LEE. Apparently they cannot keep people away from the reservoirs. In that dry country people like to go fishing and swimming and boating. Whether there are parking areas, toilet facilities, campgrounds, or anything else they simply will come there in hot summer weather and crowd around these places.

Mr. PHILLIPS. I think you better spend some of this $100,000 for more sanitary facilities.

Mr. LEE. Someone has to plan where they shall go.

Mr. PHILLIPS. I still cannot figure out why the United States is spending an average of $100,000 on a project when all the State is getting out of it is advice. We are giving nothing to the State. I suggest that Mr. Rabaut has already pointed out that the States are probably perfectly willing we should keep on spending money until this committee gets tired of appropriating it.

What would happen if we just did not appropriate any money this year?

Mr. LEE. I think what would happen would be that unplanned developments would go into these reservoirs. The economic value of these reservoirs to the communities is really enormous in the tariff from travel and the vacation trade to the business communities here.

ANGOSTURA RESERVOIR

Mr. PHILLIPS. Where is this? [Referring to pictures.]

Mr. LEE. I think that is Angostura, S. Dak.

Mr. PHILLIPS. Yes, Angostura, I see it.

Does the State of South Dakota have a State park commission?

Mr. LEE. Yes, sir.

Mr. FREEMAN. They are administering that area now.

Mr. PHILLIPS. If you were not spending any money there would not the State park commission come to life?

Mr. FREEMAN. In the case of Angostura they have signed an agreement and are administering that reservoir.

Mr. PHILLIPS. They have signed an agreement?

Mr. FREEMAN. The South Dakota Park Commission has.

Mr. PHILLIPS. What I am looking at is the result of $100,000 worth of advice?

Mr. LEE. Yes, sir. You are looking at a photograph of the Angostura Reservoir.

Mr. PHILLIPS. All I can see is one small outhouse, and I can see two piers and three motor boats, and not even a place for the cars to park, and no roads.

Mr. LEE. There is a desperate need for facilities at Angostura Reservoir, but fortunately we have been able to place the State in a position of responsibility.

Mr. PHILLIPS. At Helena, Mont., referring to this other picture, your advice was evidently to make a road right along the reservoir's edge. That, I think, was pretty good advice. Whether it is worth $100,000 or not I do not care to express an opinion, and also to put up a fence, which looks like a barbed wire fence, which apparently is intended to discourage people from coming over the fence here, so they will go over to the Angostura Reservoir, is that right?

Well, Mr. Chairman, I really think that maybe we could get a little more information from the Park Service which does an excellent job wherever it goes, but does not usually confine itself to activities such as expensive advice.

Do you not think you should either let the States do this, or else give us some more for $100,000 per location?

Mr. LEE. We have been doing the best we can.

(Discussion off the record.)

Mr. RILEY. Thank you very much.

Mr. LEE. You are welcome, sir.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

Mr. RILEY. We will pass to the next project which is operation and maintenance, under Reclamation.

We will ask that the tabulation of the amounts by project for operation and maintenance be placed in the record.

(The matter referred to follows:)

BUREAU OF RECLAMATION, PUBLIC WORKS PROGRAM

Missouri Basin

Appropriation and activity	1954 actual	1955 estimate	1956 estimate	
			Total	Appropriation request
Operation and maintenance:				
Colorado-Big Thompson, Colo.	554,635	707,700	823,700	823,700
Milk River, Mont.	59,506	42,000	42,000	2,600
North Platte, Nebr.-Wyo.	304,098	258,800	340,000	250,000
Kendrick, Wyo.	79,156	181,500	268,000	268,000
Riverton, Wyo.	103,180	115,500	128,800	128,800
Shoshone, Wyo.	161,355	179,000	181,500	176,100
Missouri River Basin, various	2,241,682	3,298,153	3,643,588	3,643,588
Projects financed entirely with funds advanced	9,921	10,133	8,300	
Subtotal	3,513,533	4,792,786	5,435,888	5,292,788

COLORADO-BIG THOMPSON PROJECT

Mr. RILEY. Would you identify yourself, please, for the record? Are you going to testify on this?

Mr. BAKER. My name is C. C. Baker, Bureau of Reclamation.

Mr. RILEY. Do I understand that it will cost $823,700 for operation and maintenance for the fiscal year 1956 on this project?

Mr. BAKER. That is the operation and maintenance fund requirement of the Colorado-Big Thompson project, including its multiple-purpose facilities, its irrigation facilities, and power-generating facilities.

GRANBY AND WILLOW CREEK PUMPING FACILITIES

Mr. RILEY. The largest item seems to be for the Granby and Willow Creek pumping plants, $181,700.

Mr. BAKER. That is in the irrigation phase.

Mr. DOMINY. The Granby and Willow Creek facilities provide the western slope supply of water which is pumped through the Alva B. Adams Tunnel to be made available first through the powerplants, and then through the Horsetooth Reservoir for release into the Colorado-Big Thompson irrigation system, and those costs are met by the water users through a repayment contract which we have with the Northern Colorado Conservancy District.

Mr. RILEY. Can you advise me concerning the income from this project, the annual income, to see how it stacks up with the cost of operation and maintenance?

Mr. DOMINY. The annual income more than offsets the annual operation and maintenance costs.

The contract which we have with the Northern Colorado Conservancy District requires them to pay some $29 million over a 40-year period on the construction obligation as well as defray annually the full costs of the irrigation operation and maintenance.

Mr. RILEY. Your experience with actual operation has been that the income is in excess of the cost of operating and maintaining it?

Mr. DOMINY. Yes, sir. As I say, their contract requires them to repay whatever the operation and maintenance costs are for that year, and in addition to that over a 40-year period to retire $29 million of the capital cost.

Mr. RILEY. Will this project have to continue to be operated by the Federal Government because of its multiple-purpose features?

Mr. DOMINY. I doubt very seriously, Mr. Riley, that it would ever be advisable to transfer the storage and power features of this project outside of the control of the United States.

Now, the irrigation system itself is already owned and operated by the Northern Colorado Conservancy District, and a number of subsidiary canal companies. The Federal Government has no responsibility beyond the actual release of water from our lowest facility on the system which, for the main part, is Horsetooth Reservoir, although we divert some of the water into their system at other points.

MILK RIVER PROJECT, MONTANA

Mr. RILEY. Now, is the Milk River project in Montana a local project which will be operated and maintained by the local interests?

Mr. DOMINY. In the case of the Milk River project all of the irrigation system, the canals, laterals, and diversion dams are now operated by the two major irrigation districts there, the Malta Irrigation District and the Glasgow Irrigation District.

We still maintain the primary storage works which are in the edge of Glacier National Park.

Mr. Riley. Why is that, Mr. Dominy? Why can we not turn the whole thing over to them?

Mr. DOMINY. I would like to have Mr. Clinton speak on that.

Mr. CLINTON. We have been working on that, Mr. Chairman. We have been working hard on those districts for the last year or two to try to get them to set up a board of control. There are eight districts in the Milk River project which get service from these joint facilities, and if they can set up a control board there is no reason why they cannot take over operation and maintenance of these works.

Mr. RILEY. In the case of the Milk River project what would happen if we just stopped appropriating money?

Mr. CLINTON. Mr. Chairman, practically all of the cost of operation and maintenance is paid by the water-users.

You will note in the justification that they are advancing $39,400 out of the $42,000. So, the only portion of it borne by the Government now is $2,600 on Milk River, and that is due to the flood-control operation of the storage works. The water users do not feel that they should pay for that.

Mr. RILEY. Will the Secretary of the Interior enlighten them a little bit on that?

Mr. CLINTON. We are trying to, sir.

Mr. RILEY. I would suggest that the Secretary advise them that they are going to have to take it over.

Mr. DOMINY. As Mr. Clinton has stated, Mr. Riley, there are eight districts involved in this project. It is necessary for us to get some kind of a board of control established there before we can transfer it to them.

Mr. RILEY. We have gone ahead and constructed these facilities, and I believe that Congress was under the impression that they would be taken over by the local interests, so I feel that they should make the necessary arrangements to take them over when the construction is completed.

Mr. DOMINY. Yes, sir, we are fully in agreement with that, and we have those instructions from the Congress.

You understand here, of course, except for the $2,600 which is allocated for flood-control purposes, which customarily is nonreimbursable, and is borne by the Federal Government, that all of these funds are returned annually to the Treasury.

Mr. RILEY. But we still have the management of it, do we not?

Mr. DOMINY. Yes, sir, that is right.

Mr. RILEY. That is what we would like to get rid of.

NORTH PLATTE PROJECT

Mr. RILEY. Now, the next one is North Platte project which seems to be a multipurpose project, is that right? It has some power in it?

Mr. DOMINY. That is right, sir.

Mr. RILEY. Is that one that we will have to continue to operate for that reason?

Mr. DOMINY. Yes, I think because of the power features in the principal storage reservoirs and of the diversion dams that the Federal Government should continue to operate that portion of the project.

Again, the irrigation facilities that actually deliver the water to the project farms, they are under the complete management of the irrigation districts.

Mr. RILEY. And they repay the costs?

Mr. DOMINY. That is right. We have a contract to repay the reimbursable obligation, and they handle all of the operation and maintenance cost without appropriation.

Mr. RILEY. Is your estimated power generation and the income therefrom working out all right?

Mr. DOMINY. Mr. Baker will testify on that.

Mr. BAKER. Yes, sir; it is. The annual results of the power sales as compared to the obligations for repayment are reviewed each year and the North Platte revenues still show a sufficient margin to cover the financial requirements imposed on the project power.

KENDRICK PROJECT, WYOMING

Mr. RILEY. Now, the Kendrick project over in Wyoming has some power in it too, has it not?

Mr. DOMINY. Yes, sir. The power request for 1956 is $220,000, and the irrigation portion of the O. and M. is $39,000.

Mr. RILEY. And again in actual experience is the income sufficient to amortize the cost?

Mr. DOMINY. There is no question but what the power revenues will fully amortize the amount here requested for power operation and maintenance.

As I reported earlier in your hearings, the Kendrick project is still under development, as far as irrigation is concerned. We are delivering water on an annual water rental basis.

I cannot be certain that we will sell enough water in the fiscal year 1956 to repay that full amount of $39,000. It may be that part of that will have to be added to the construction repayment.

Mr. RILEY. What about the future?

Mr. DOMINY. In the future we expect to have before the Congressional Legislative Committee a revised contract for approval pursuant to the authority contained in section 7 of the Reclamation Project Act of 1939 with the hope that that contract will prove final with the type of adjustments which are necessary to put Kendrick on a sound financial basis.

RIVERTON PROJECT

Mr. RILEY. Next is the Riverton project. Is that another one that has some power in it?

Mr. CLINTON. Yes, sir, that has a small powerplant on it, a 1,600-kilowatt plant.

Mr. RILEY. Briefly, what is the situation there with regard to operation and maintenance and income?

Mr. CLINTON. The powerplant has been in operation for several years and it has practically paid out, although there is a small balance of around $30,000 unpaid on it, and the revenues are in excess of our operating costs.

Mr. RILEY. That is fine.

SHOSHONE PROJECT

The next is the Shoshone project. That is another one that has power in it?

Mr. CLINTON. Yes, sir.

Mr. RILEY. Briefly what is the situation there?

Mr. CLINTON. The Shoshone project power pay-out is well along also. The repayment schedule shows that the Shoshone and Heart Mountain powerplants will be paid out around 1959, and from then on there will be a considerable surplus in revenues over all the operation and maintenance costs for the powerplant.

SUMMARY BY DIVISIONS OR UNITS OF MISSOURI RIVER BASIN PROJECT

Mr. RILEY. Now, we have a number of units apparently in the Missouri River Basin project, some 15 of them, I believe, which are considered as one. That is on page 598 of the justifications. We will insert that page into the record.

(The matter referred to follows:)

Schedule of operation and maintenance program, fiscal years 1954, 1955, and 1956, Missouri River Basin project—Summary by divisions or units

Program item	Total prior year 1954	Program current year 1955	Program budget year 1956
(1)	(2)	(3)	(4)
All facilities			
Angostura unit	$10,821	$12,600	$25,950
Bostwick division	71,219	103,047	59,920
Boysen unit	106,298	98,033	100,000
Canyon Ferry unit	56,096	139,200	140,000
Cedar Bluff unit	11,098	12,575	12,700
Crow Creek unit	1,356	9,000	2,500
Dickinson unit	2,202	4,000	4,000
Fort Clark unit	4,316	7,030	1,800
Frenchman-Cambridge division	82,100	105,311	89,430
Heart Butte unit	7,644	11,000	8,800
Jamestown unit		5,500	5,600
Keyhole unit	6,270	7,200	7,200
Kirwin unit			17,500
Kortes unit	119,382	150,000	115,000
St. Francis unit	11,679	12,467	14,700
Shadehill unit	6,035	7,100	7,100
Transmission division:			
Eastern division	377,902	1,069,437	1,519,028
Western division	1,367,264	1,544,653	1,496,560
Webster unit			15,800
Total obligations	2,241,682	3,298,153	3,643,588
Allocation:			
Irrigation	154,797	202,671	128,410
Power	2,022,886	2,995,823	3,364,648
Municipal water	1,231	2,400	1,100
Flood control	61,189	84,809	135,980
Recreation	1,579	6,800	6,400
Fish and wildlife		5,650	7,050
Total obligations	2,241,682	3,298,153	3,643,588
Method of financing:			
Allotment	2,754,233	3,298,153	
Unobligated balance	−512,551		
Allotment			3,643,588

Mr. RILEY. I notice on these 15 projects last year that the operation and maintenance costs were $3,298,153, and this year they are up to $3,643,588. Would you explain that increase there in operation and maintenance?

Mr. DOMINY. That increase is on the power item.

Mr. CLINTON. Yes, sir; most of that is on the transmission division, Mr. Chairman, because of the increased mileage of line we have to operate this year, and the additional substations on which construction has been completed, and they will be in operation during the fiscal year 1956.

OPERATION OF PROJECTS BY LOCAL DISTRICTS

Mr. RILEY. Are there any of these units that are purely local projects, and which have no power in them?

Mr. CLINTON. Yes, sir; a few of them do not have power in them.

Mr. RILEY. Can you name those for me?

Mr. CLINTON. I can name them in region 6. They are the Crow Creek unit, the Dickinson unit, the Fort Clark unit, the Heart Butte unit, the Jamestown unit, the Keyhole unit, and the Shadehill unit. There are some in region 7 also.

Mr. RILEY. Referring to those units in region 6, is there any reason why those cannot be turned over to the local people to operate, or what is the situation there?

Mr. CLINTON. I think, as I have said during the past week, that we are trying to turn them over to them as fast as we can, as soon as we can get an irrigation district formed and a contract in effect, and the Board gets fully enough acquainted with the operation of the project that they can hire their own manager and take it over. We have been urging them to do that. We have had a lot of them taken over shortly after the contract went into effect.

Mr. RILEY. I hope that you continue to push that so that we can transfer them as soon as construction is completed and they are in operating condition. What about those which I believe you said were in region 7?

Mr. CROSTHWAIT. The balance of those, Mr. Chairman, that do not have power and are located in what we refer to as region 7 are the Bostwick division, the Cedar Bluff unit, the Frenchman-Cambridge division, the Kirwin unit, the St. Francis unit, and the Webster unit.

Mr. RILEY. What is the situation in regard to them with respect to getting the local interests to take them over and operate them?

Mr. DOMINY. The funds requested in the operation and maintenance budget for each of these projects will be returned by repayments from the water users in the current year. We have, in every case, included in our recent Government district repayment contracts a specific formula under which the water users will take over the operation and management of the facilities after the close of the development period. Of course, that varies among the units when they come off the line, but we are providing in our contract in every instance that the districts will take over the operation and maintenance after the close of the development period.

Mr. RILEY. Do you think that you are having any undue delay, or do you think that they are organizing and taking the projects over within a reasonable time?

Mr. DOMINY. We feel that we are in good shape on all of these newer projects, and we are anticipating that and we are working with the irrigation districts from the very inception with the idea that they will have that responsibility.

Mr. RILEY. Mr. Davis, do you have any questions on this list of projects? I have taken them as one unit.

COLORADO-BIG THOMPSON AND NORTH PLATTE PROJECTS

Mr. DAVIS. Take a project like this Colorado-Big Thompson project, and it is apparently one of the bigger items, why would there be a substantial increase from 1955 in your operation and maintenance costs?

Mr. DOMINY. In the case of the Colorado-Big Thompson project the increase of $101,900 is the power increase. Mr. Baker.

Mr. BAKER. The major part of the estimated increase in operation and maintenance for 1956 is due to the necessary replacements and improvements which are considered essential for the proper operation and maintenance of the power system.

During the past 2 fiscal years the appropriations which have been made have been insufficient to perform an orderly procedure on the required maintenance and replacement programs, and this year the Bureau is again requesting $113,000 for replacements and improvements which have been postponed from previous years.

Mr. DAVIS. Well, what are they?

Mr. BAKER. They include various system improvements, some replacements in substations and extraordinary maintenance on transmission lines, vehicle replacements and items of that nature.

Mr. DOMINY. The irrigation increase is in the amount of $14,100, Mr. Davis, and that is occasioned by an increase in the anticipated cost of operation and maintenance of the Horsetooth feeder canal. That is a canal on the east side of the Rockies which carries the water from the lower pumping plants over into Horsetooth Reservoir, and experience has indicated that the operation and maintenance on that has to be increased somewhat.

Then the other increase is occasioned by the heavier cost for Shadow Mountain Camp and increased costs of labor in connection with the Granby-Willow Creek pumping plants.

Those increases will be passed on to the water users, and they will be repaid.

Mr. DAVIS. Can you give us a little something more specific than you have told us with respect to that increase in replacements and improvements? You told us in a rather general way, which I assume would apply to any project we might ask about. I think that same answer could be given probably without a specific reference to this particular project whenever that question might be asked. I wonder if you can give us something specific here about this?

Mr. BAKER. As far as naming the specific items with specific amounts is concerned, I do not have available here the detailed information which would provide that.

Mr. DAVIS. You probably would have that in your records down in the office, however?

Mr. BAKER. Yes, sir.

Mr. DAVIS. I suggest that you give us that information. I will feel a little better about it if you do. In other words, your answer was very general, and if I were sitting on that side of the table I probably would have said the same thing without knowing a thing about the project at all. So, I would like to have you fill in a little bit more on that, if you will.

Then if you will furnish us the same information with regard to the North Platte project as well?

Mr. BAKER. Yes, sir.

(The matter referred to follows:)

REPLACEMENTS AND IMPROVEMENTS IN FISCAL YEAR 1956 FOR OPERATION AND MAINTENANCE PROGRAMS ON THE COLORADO-BIG THOMPSON AND NORTH PLATTE PROJECTS

COLORADO-BIG THOMPSON PROJECT

Item	Fiscal year 1956 requirement
Operational planning and clearing up rights-of-way, small tools (irrigation)	$3,300
Algae control installations in canals, minor service improvements	6,100
Repair gaging station, Granby	5,000
Air compressor, Mary's Lake powerplant	1,000
Oil filter, Granby pumping plant	1,000
Oil filter, Flatiron powerplant	1,000
Flatiron powerplant greasing system	3,500
Polehill powerplant greasing system	2,500
Other improvements to powerplants, camps, access roads, and generating facilities	25,000
Improvements long delayed on dams, reservoirs, and waterways	10,000
System operations planning and improvement	4,500
Passenger vehicles (suburbans)	25,000
Radio equipment	4,000
Safety equipment	4,000
Firefighting equipment and minor replenishment of stores	32,840
Total	128,740

NORTH PLATTE PROJECT

Drainage-diversion structures	13,700
Replace passenger vehicles	4,300
Guernsey oil piping and transformer temperature gage	1,000
Paint, Guernsey scroll and penstock	1,500
Dismantle Guernsey-Sunrise transmission line	1,500
Connect new customers	1,000
Repair basements, 4 houses	2,000
Clear status of rights-of-way	5,000
Guernsey Camp house	13,000
Repair powerplant roof and water purifier	1,500
Reconductor Gering-Scottsbluff line	8,000
Guernsey Camp water well and pump	5,000
Replace poles, structure list, Wheatland line	22,500
Replace water heaters at Guernsey plant and other minor improvements	8,500
Total	88,500

REIMBURSEMENT FOR OPERATION AND MAINTENANCE COSTS

Mr. PHILLIPS. Mr. Dominy, you testified that when you had these facilities, certain of these facilities ready, reading on page 595, the expression was that when you had the contracts ready, you would turn them over to local organizations. You mean like REA's, or a contractual group who will operate it as a project?

Mr. DOMINY. Speaking strictly from the irrigation facility point of view.

Mr. PHILLIPS. Turn it over to a corporate district?

Mr. DOMINY. We deal only with irrigation districts formed pursuant to the State laws.

Mr. PHILLIPS. If I remember some of the testimony, and I underlined Shadehill and Bonny, what if you do not have a group of farmers ready to deal with you?

Mr. DOMINY. In Shadehill, Bonny, and Cedar Bluff?

Mr. PHILLIPS. What will you do with them?

Mr. DOMINY. Those reservoirs at the present time are operated by the Bureau of Reclamation. That part of the operation and maintenance cost that is proportionate to the flood-control allocation is a nonreimbursable item.

The reimbursable portion of the operation and maintenance allocation is carried as a capital obligation. We have no other place to put it.

Mr. PHILLIPS. Some day when you find people who will take this off your hands they will pay that cost.

Mr. DOMINY. Actually it is a charge against the Missouri Basin power revenues because we do not anticipate that the irrigation districts, when formed, would pick up any more than the current operation and maintenance costs, and a portion of the construction cost for canals and laterals.

Mr. PHILLIPS. Have you made an estimate of how much we are losing on Shadyhill, Bonny, and Cedar Bluff?

Mr. DOMINY. They are not expensive facilities to operate, Mr. Phillips. I think we have the breakdown here by units.

Cedar Bluff $12,700; Shadehill is $7,100; the St. Francis is $14,700.

Those reservoirs, during this interim period, are being operated to the maximum extent possible for flood control.

Mr. PHILLIPS. We are charging this up against the plants on the main stem.

Mr. DOMINY. Any deficits in the irrigation accounts, assignable to irrigation, would go as a capital charge against these reservoirs.

Mr. PHILLIPS. With considerable doubt as to whether there will be surplus to charge anything against.

Mr. DOMINY. That was the question you explored rather fully this morning, and there will be complete reports made for the record, as I understand it.

LEGAL AUTHORITY FOR THE PURCHASE OF POWER

Mr. PHILLIPS. Turning over to 597, "Other production costs," it states:

> The other production expense for purchase of power, purchase of power anticipated only in quantities sufficient to bring the system energy up to that available under normal water supply conditions.

Will you give me the legal authority for the purchase of power?

Mr. BAKER. I cannot give you any citation of legality on that, except that the Secretary of Interior is authorized to market the power which is made available from the Missouri River project power system.

From a policy standpoint the marketable power is considered as something better than is available in the most adverse water year of record, and probably somewhat less than the best water years of record.

This purchase of power is the purchase of energy during years of less than average water conditions in order to maintain our ability to supply power to our customers.

Mr. PHILLIPS. You call that a legal authority to buy power when the statute specifically states that the Secretary is authorized to dispose of the power created from the Missouri River?

Mr. BAKER. It was testified the other day in answer to a somewhat similar question that there may not be found to be an exact legal authority to make such purchases, but, on the other hand, there is not a clear legal prohibition against such an activity.

This same procedure has been followed in past years. It has been brought out before the committees in seeking appropriation for funds for this purpose without question as to any legality.

Mr. PHILLIPS. You are propounding a theory that the Federal Government can do anything that is not specifically prohibited by law. The Department of Interior can do anything which it is not specifically by law prohibited from doing?

Mr. BAKER. I would not like to propound any theory on that.

Mr. PHILLIPS. Isn't that what you just said in perhaps more simple language?

Mr. BAKER. I am saying it has been our practice to do this.

Mr. PHILLIPS. You have read the Constitution at some time or other in your life; have you not? Isn't that exactly just the opposite of what the Constitution states?

Mr. BAKER. I don't think I am qualified to answer that.

Mr. RILEY. Thank you very much, gentlemen.

That winds up the reclamation requests for this river basin.

THURSDAY, APRIL 28, 1955.

SOURIS-RED BASIN

WITNESSES

F. G. AANDAHL, ASSISTANT SECRETARY FOR WATER AND POWER, DEPARTMENT OF THE INTERIOR

CORPS OF ENGINEERS

BRIG. GEN. E. C. ITSCHNER, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS

COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL

M. S. GURNEE, OPERATIONS DIVISION, CIVIL WORKS

Appropriation	*Corps of Engineers*
General investigations	$55,000
Advance engineering and design	------
Construction	650,000
Operation and maintenance	75,000
Total	780,000
Project, flood control: Red River of the North:	
June 30, 1954:	
Unobligated balance	$280,974
Unexpended balance	756,346
Mar. 31, 1955:	
Unobligated balance	[1] 229,943
Unexpended balance	[1] 490,563
June 30, 1955 (estimated):	
Unobligated balance	[1] 6,000
Unexpended balance	[1] 277,200

[1] Excludes $140,000 loaned to other projects.

Mr. AANDAHL. Mr. Chairman, we have a short statement for the Souris-Red Basin, which is somewhat associated with the Missouri Basin as a whole, and I would like to ask permission to just file that statement.

Mr. RILEY. Without objection the statement will be inserted.

(The matter referred to follows:)

The portion of the Souris-Red Basin located in the United States includes the northeastern corner of South Dakota, a substantial part of northwestern and northern Minnesota, and much of eastern and northern North Dakota. In the center of the basin the Red River flows northward forming the boundary between Minnesota and North Dakota. To the northeast, the Rainy River forms the boundary between Minnesota and Ontario and flows westward into the Lake of the Woods. On the northwest, the Souris River flows southward into North Dakota from its source in Canada, loops around to again cross the international boundary, and flows northeastward to join the Assiniboine River, which is, in turn, tributary to the Red River in Canada. The Red River watershed covers an area of about 38,200 squire miles located south of the international boundary, including about 3,900 square miles tributary to Devils Lake which has no natural outlet. Approximately 11,420 square miles are included in the Lake of the Woods watershed in the United States and about 9,320 square miles of the Souris River watershed is located in this country.

The water problems in the region include a widespread and general need for flood control, principally in the spring following periods of above normal precipitation and, in the Red River and Souris River Basins particularly, a need for water conservation to meet the increasing demands for water supply, pollution abatement, and irrigation during periods of below normal rainfall. The region is largely devoted to farming with the principal industrial development concentrated at International Falls on the Rainy River, at Fargo-Moorhead and Grand Forks-East Grand Forks on the Red River, and at Minot on the Souris River. Because of the relatively flat terrain in the central valley of the Red River Basin, the tributary streams have flat slopes and generally inadequate capacities to carry flood flows so that widespread flooding of the fertile farmland takes place frequently. Although extensive systems of drainage ditches have been constructed throughout the valley by the States of North Dakota and Minnesota, the ditches function poorly because of inadequate outlets.

NAVIGATION

The overall authorized program for navigation is limited to two harbor improvements in the Lake of the Woods watershed. Completed work includes the two harbors at Warroad and Baudette, Minn., with depths of 8 feet and 6 feet, respectively. It has been recommended that the harbor improvements be considered complete in their present condition and that the remaining work under the original authorization be not accomplished. There are no navigation works under construction, and none are proposed for fiscal year 1956.

FLOOD CONTROL

The authorized flood-control program in the Red River area includes 7 reservoirs, channel improvements on 11 tributaries, and local protection works at 6 communities located on the main stem. There are no authorized improvements in the Souris Basin. However, flood problems disclosed by the record floods in the spring of 1950 at numerous points in the Red River Basin and in the vicinity of Minot on the Souris River are being investigated. Following the great flood in 1950, a basinwide review investigation has been authorized and is in progress. Completion of this study may indicate justification for flood protection at several additional locations.

To date five reservoirs—Lake Traverse, Lake Ashtabula, Red Lake, Homme, and Orwell—have been substantially completed, making available 1,093,000 acre-feet of storage for flood control and water conservation. Approximately 146 miles of channel on six tributaries of the Red River have been improved. Under the authorized program there remains to be completed about 179 miles of channel improvement on 6 streams and approximately 4 miles of levees and flood walls at 4 communities. At the present time channel improvement projects on Mustinka and Rush Rivers and local protection works at Grand Forks are under construction with completion scheduled for December 1955, June 1956, and June 1957,

respectively. In addition, it is expected that a contract will be awarded in June 1955 for channel improvement work on the Sand Hill River with completion scheduled for June 1957. There are no new starts proposed for fiscal year 1956.

IRRIGATION

At the present time there are no irrigation developments in the Souris or Red Basins. Authorized work consists of areas that could be developed as a part of the Missouri River Basin in North Dakota. The low divide between the Souris and the Missouri makes possible the irrigation of large areas in central North Dakota by diversion from the main Missouri River between Fort Peck and Garrison Dams. Extensive investigations in the Crosby-Mohall area have developed serious doubts as to the irrigability of lands that could be reached by a canal diverting from the Missouri below Fort Peck. Investigations and planning are now under way on the Garrison diversion unit in the Missouri Basin, including lands in the Souris. This unit would also include the restoration of Devils Lake. The desirability of irrigation has been fully established through cooperation with the State of North Dakota. Extensive planning work remains to be accomplished with funds provided under the Missouri River Basin project. Provision for satisfactory drainage of the lands that could be irrigated requires a great deal of attention. No irrigation construction is under way or proposed for fiscal year 1956.

POWER

There are no Federal power generating facilities in the Souris-Red Basins, and none are proposed. However, these basins are well within the marketing area of the Missouri River Basin project, using power generated at the main Missouri plants now under construction by the Corps of Engineers. Agencies in both North Dakota and Minnesota have been instrumental in obtaining Missouri River power.

The Bureau of Reclamation, as part of the Missouri Basin Transmission Division, has constructed lines into Rugby, Rolla, Bisbee, Devils Lake, and Forman. Lines are now under construction to Fargo and Granite Falls. One new line is proposed in fiscal year 1956; a 115-kv. line from Fargo to Grand Forks, Minn. This work is more fully covered under the Missouri River Basin.

CONCLUSION

The reservoir and channel improvement projects completed to date in the Red River Basin have materially reduced damages from floods which have occurred since their completion and have reduced the flood threat in other areas. As a result the general economy of large sections of the valley has been improved and crop production increased. Of particular significance is the favorable effect of the coordinated water plan under which the existing reservoirs are operated to meet the complete water requirements for industrial and urban needs and to supply sufficient water to meet requirements for pollution abatement in all but the most critical drought years. Because of the water supplies assured by operation of the reservoirs under the coordinated water plan, food processing industries requiring large quantities of water have found it feasible to establish major developments in the Red River Valley. Since the present program produces large-scale benefits from both flood control and from the assurance of adequate stream flows during low water periods, local interests have generally accepted and actively supported the program.

General Investigation

Mr. Riley. You are requesting a total of $55,000 for planning in this basin. We will insert page 3 of the justification into the record at this point.

(The matter referred to follows:)

SOURIS AND RED DRAINAGE AREA

JUSTIFICATION OF ESTIMATE—GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. Examinations and surveys

(*a*) *Navigation studies.*—None.

(b) *Flood control studies.*—The amount of $55,000 is requested for prosecution of four studies in the Souris and Red drainage area during fiscal year 1956. This amount will permit completion of three reports and progress on the remaining one.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Minnesota:				
Red River Basin, Minn. and N. Dak. main report	$220,000	$5,400	$16,600	$198,000
Crookston (interim)	55,000	45,600	9,400	0
Lake of the Woods	37,000	12,000	25,000	0
North Dakota:				
Souris (Mouse) River	11,200	7,200	4,000	0
Total	323,200	70,200	55,000	198,000
Grand total	323,200	70,200	55,000	198,000

CONSTRUCTION

RED RIVER OF THE NORTH, MINN. AND N. DAK.

Mr. RILEY. The next project to be considered is local protection projects on the Red River of the North, States of Minnesota and North Dakota.

I note, Colonel Starbird, that you are asking for $650,000 to continue construction work on this project.

I will insert pages 121 to 123, inclusive, for the record.

(The pages referred to are as follows:)

RED RIVER OF THE NORTH, MINN. AND N. DAK

Location.—Improvements for local protection on the lower Maple and Rush Rivers, tributaries of the Sheyenne River and the lower Sheyenne River, a tributary of the Red River of the North in North Dakota; on the Otter Tail, Wild Rice, Marsh and Sand Hill Rivers, tributaries of the Red River and the Mustinka River, tributary to the Bois de Sioux River in Minnesota; the Red River of the North at Wahpeton-Breckenridge, Fargo-Moorhead and Grand Forks-East Grand Forks in North Dakota and Minnesota; and a flood control and water conservation reservoir (Orwell site) on the Otter Tail River near Fergus Falls, Minn.

Authorization.—1948 and 1950 Flood Control Acts.

Benefit-to-cost ratio.—1.59 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$12,050,000	
Estimated local cash contributions	0	
Estimated project cost	12,050,000	
Appropriations to June 30, 1954	3,786,000	
Appropriations for fiscal year 1955	300,000	
Appropriations to date	4,086,000	34
Appropriations requested for fiscal year 1956	650,000	39
Balance to complete after fiscal year 1956	7,314,000	

PHYSICAL DATA

Orwell Dam:
Dam:
Type: Earthfill with concrete control works.
Height: 47 feet.
Length: 1,355 feet.
Spillway:
Type: Concrete, gated.
Capacity: Maximum, 20,400 cubic feet per second.
Channel improvements (includes clearing, deepening, and widening, and in most cases, straightening): Length, 226 miles.

Reservoir capacity:	Acre-feet
Flood control	13,100
Minimum storage	1,000
Total	14,100

Levees and floodwalls

	Fargo	Moorhead	Grand Forks	East Grand Forks
Average height of levees, feet	12	15	16	14
Total length of levees, do	4,400	1,800	5,805	7,579
Average height of walls, do	18	None	6	12
Total length of walls, do	900		750	1,804
Pumping plants, number	1	1	1	3
Interceptors, storm sewers and outfalls, feet	1,100	1,126	4,075	3,745

Status (Jan. 1, 1955)

	Percent	Completion schedule
Orwell Reservoir and Dam (dam in operation)	99	October 1954.
Otter Tail River unit	97	June 1955.
Wild Rice-Marsh River unit	96	September 1955.
Sand Hill River unit (construction not initiated)	9	June 1957.
Mustinka River unit	53	December 1955.
Sheyenne River unit (construction not initiated)	3	June 1958.
Rush River unit	17	June 1956.
Maple River unit (construction not initiated)	0	June 1959.
Wahpeton-Breckenridge unit (construction not initiated)	1	June 1959.
Fargo-Moorhead unit (construction not initiated)	3	June 1959.
Grand Forks unit	47	June 1956.
East Grand Forks unit (construction not initiated)	4	June 1963.
Entire project	28	June 1963.

JUSTIFICATION

The project is a basinwide flood-control and water-utilization project in eastern North Dakota and northwestern Minnesota involving the Red River of the North and its tributaries. The troublesome water problems in the basin are prolonged flooding of large areas of rich agricultural land and several large industrial urban areas, and lack of sufficient water of suitable quality for water supplies in both urban and rural areas and for pollution abatement during periods of low flow. Seven major floods have occurred since 1881, the most recent being the extensively damaging floods in the springs of 1950 and 1952. Construction of the project will alleviate these critical conditions, and by storing flood flows will provide increased low flows for water supply and pollution abatement.

Damage from the 1950 flooding in Grand Forks and East Grand Forks area amounted to over $1,200,000. These two cities form a major population area in northwestern Minnesota and northeastern North Dakota and serve as a major distributing center for a large consuming region. They are in the center of important agricultural areas, and a transportation hub, and have many food-processing and other industries. Damage from flooding at Fargo, N. Dak., and Moorhead, Minn., from the Red River has also been serious in recent years, the

most recent being in the spring of 1952. Flood losses in the last decade have amounted to over $1,600,000 in the 2 communities. These cities are the center of a large trade area having several important food-processing and other industries, including a nationally known beet-sugar factory as well as a large wholesale and retail business. A large hospital is also affected by flooding almost annually. Agricultural and urban areas adjacent to proposed improvements at other locations have also suffered considerable damage.

Fiscal year 1956.—The requested amount of $650,000 will be applied to—

Complete Mustinka River channel improvements	$92, 100
Continue Sand Hill River channel improvements	221, 400
Prepare plans and specifications for Sheyenne River channel improvements	15, 600
Prepare plans and specifications for Maple River channel improvements	39, 300
Prepare design memoranda for Wahpeton-Breckenridge improvements	12, 900
Prepare plans and specifications for Fargo-Moorhead improvements	24, 000
Complete improvements at Grand Forks	244, 700
Total	650, 000

Completion of channel improvements will alleviate flood damages in areas adjacent to the improvements. Preparation of plans and specifications will be brought to a stage where construction could be initiated on additional units.

LOCAL COOPERATION

Mr. RILEY. What is the situation with regard to the local cooperation agreements on this project?

Colonel STARBIRD. Sir, there are two parts of the project underway for which there is no problem of reaching further agreement because we already have the lands. Those two parts are the Rush River improvement and the Mustinka River improvement. Those will be completed in fiscal year 1956.

At Grand Forks we have assurance that the lands will be provided. This is a project to be continued in fiscal year 1956. We have had a situation there where the foundation condition required further study. We expect to complete that study at the end of another month. This may require certain changes in the lands local interests procured. We have not as yet been able to tell them exactly what are the added lands involved. Local interests had procured the lands for the earlier project. We believe they will procure those for the change involved.

The last unit, and the only one not now underway, is that of the Sand Hill. In the Sand Hill unit we intend to initiate construction in June of this year.

The major portion of the lands have been procured. Local interests have given us assurances that they will provide all lands and in a recent telephone conversation they indicated that they would condemn the remaining small section of land if necessary so as to make those lands available by the 15th of May.

BENEFITS FROM PROJECT UNITS

Mr. RILEY. These various projects are dependent on each other for the full benefit?

Colonel STARBIRD. To some extent, yes, but to a major extent no, sir.

There is one reservoir within this project. In addition we have already constructed or rebuilt four others. These have their effect on the tributary concerned and on the main-stem structures.

For the remainder, channel improvement generally, there is no effect one on the other.

Mr. RILEY. Do I understand from that that each one of these projects would produce considerable benefit to the local community even though some of the others were not constructed?

Colonel STARBIRD. That is correct, sir.

STATUS OF FUNDS

Mr. RILEY. What is the financial situation there?

Colonel STARBIRD. The cash carryover at the end of this fiscal year, sir, is $417,000 unexpended. Of that amount $140,000 will be out on loan to be repaid during the fiscal year 1956.

That $417,000 with the $650,000, will give us $1,067,000 expenditure for the fiscal year 1956.

That money will be applied to continue units already underway. There will be no new units initiated.

The money will be used as follows: $134,800 on the Mustinka unit, to complete that unit; $149,600 to complete the Rush unit; $328,000 to continue the Sand Hill unit; $282,000 to complete the Grand Forks unit.

The remainder, $193,600, will be for engineering, supervision and administration and for the completion of certain small cleanup work on units which are substantially complete now.

Mr. RILEY. Do you think that you are sufficiently cleared away to use this $1,067,000 to good advantage during the next year?

Colonel STARBIRD. We believe that the probability is that we can spend that money in the next fiscal year. As I mentioned, there are no new units being started in the fiscal year 1956.

BENEFIT-COST RATIO

Mr. RILEY. Is your benefit-cost ratio on this project holding firm?

Colonel STARBIRD. Fairly firm, sir. There has been a slight change since last year. The benefit-cost ratio on the project as a whole is 1.59 to 1, as compared with 1.64 to 1 last year.

Mr. RABAUT. For what reason has the benefit-cost ratio diminished?

Colonel STARBIRD. We reevaluate each year the benefit-to-cost ratio based on the actual benefits that we expect to get. We also have adopted a slightly different method this year. It is a sound method, considering our knowledge of the situation, we believe. That, after all, is a very slight change which is involved.

Mr. RABAUT. Yes.

Colonel STARBIRD. It basically has held steady.

Mr. RABAUT. Off the record.

(Discussion off the record.)

STATUS OF FUNDS

Mr. DAVIS. I was not able to follow you completely, Colonel, when you told us the division of the total amount available for obligation by reason of the carryover. My question is this: as to whether the amount you gave us included everything that appears on page 576 of the justifications, or whether there has been a revamping of your plans for the use of the total of $1,067,000?

Colonel STARBIRD. The figures I gave, sir, totaled $1,067,000, and included the carryover concerned. Basically, it includes the amounts in the justification plus, on certain units, a portion of that $417,000 carryover.

Mr. DAVIS. Therefore, everything that is set forth on page 576 of the justifications was included in the figures, or the breakdown, that you gave us as to the plan for the use of the larger amount that is available by reason of the carryover?

Colonel STARBIRD. That is correct, sir.

LOCAL COOPERATION

Mr. DAVIS. It is always touch and go on this project. Is the local cooperation going to be sufficient to continue it on schedule? It seems that you are always having to needle these folks up there in order to get them to come through with the commitments that they are supposed to make. Are they not interested in this project, or what is the difficulty?

Colonel STARBIRD. I think that they are interested, sir. They have several problems up there, however. The population usually is scattered and sparse.

Once they decide that they will support a project they must create an additional conservancy district.

Furthermore, the basis of assessment for support of the project must be approved by the courts. This, naturally, leads to certain delays while they are getting themselves organized.

In the Sand Hill unit, which I mentioned earlier, there has also been a further delay in that we have had to change the design slightly after giving them an original layout, but they have indicated that they will come through with the lands concerned.

Mr. PHILLIPS. Does the Red River flow north or south?

Colonel STARBIRD. The Red River flows north, sir. The Souris is a tributary of the Red River of the North. It flows south from Canada [indicating], and then it loops back into Canada again [indicating], and then goes over to join the Red River in Canada.

Mr. PHILLIPS. How far north of the line does it join?

Colonel STARBIRD. I do not know exactly. I think it is about 100 miles. Could you look on that map just above your head and see what the distance is?

General ITSCHNER. It does not show on that map.

OPERATION AND MAINTENANCE

Mr. RILEY. We will move along to the maintenance and operation item and insert page 137 of the justification.

(The matter referred to follows:)

SOURIS AND RED BASIN

JUSTIFICATION OF ESTIMATE—OPERATION AND MAINTENANCE, GENERAL, FISCAL YEAR 1956

1. Navigation

(*a*) ***Channels and harbors.***—The work to be accomplished under this activity consists of condition survey operations at navigation projects in Lake of the Woods and Rainy Woods areas to determine the condition of the projects for programing purposes and providing navigation interests with adequate informa-

tion on existing channel conditions as authorized in the laws adopting river and harbor projects.

Tentative allocation, fiscal year 1956

Condition surveys	$1,000
Total navigation	1,000

2. Flood Control

(*a*) *Reservoirs.*—The budget estimate of $74,000 provides for the operation and ordinary maintenance of 5 flood-control reservoirs in the Souris and Red Basin during fiscal year 1956, and nondeferrable rehabilitation work. The amount requested in fiscal year 1956 is approximately $10,000 more than the amount available in fiscal year 1955 due to the placing in operation of the Red Lake outlet structure, and is the minimum necessary for adequate and efficient operation and maintenance of the projects.

Minnesota:	
Orwell Reservoir	$14,000
Red Lake outlet structure	8,000
North Dakota:	
Baldhill Reservoir	28,000
Homme Reservoir	10,000
South Dakota:	
Lake Traverse and Bois de Sioux River	14,000
Total reservoirs	74,000
Total flood control	74,000
Grand total Souris and Red Basin	75,000

Colonel STARBIRD. Mr. Gurnee, of the Operations Division, will testify on that, sir.

Mr. RILEY. Mr. Gurnee, will you please tell the committee how you allocate funds for the maintenance and operation of these projects? Is it not true that some of this maintenance and operation has to be borne by the local interests?

Mr. GURNEE. In the categories for which we are asking for funds on the Souris River and the Red River there is no local cooperation required, sir. These are all flood-control reservoirs.

Mr. RILEY. These are all flood control?

Mr. GURNEE. Yes, sir; the maintenance and operation of which is entirely borne by the Corps of Engineers, or the Government.

Mr. RILEY. By the Government?

Mr. GURNEE. Yes, sir.

Mr. RILEY. Do you have any protection either by levees or revetments where the maintenance and operation is borne by the local interests? I know in some instances that is the case. I was wondering whether or not that was the case here.

Mr. GURNEE. That is not the case in this watershed, sir.

Mr. RILEY. It is the policy here for the Government to not only construct them, but to maintain them?

Mr. GURNEE. Yes, sir.

LAKE TRAVERSE AND BOIS DE SIOUX PROJECTS

Mr. RILEY. Is it not true of the Lake Traverse and Bois de Sioux projects, which were built for local protection, that someone else ought to furnish the cost of operation and maintenance?

Mr. GURNEE. No, sir.

Colonel STARBIRD. I might enlarge on that, Mr. Chairman.

On the Bois de Sioux, Lake Traverse is a relatively large reservoir. It has 137,000 acre-feet altogether, and you can note that it is at the head of the river, the main stem leading on past 3 of the local protection areas. I believe this fund does include the maintenance of the portion of the channel just below the reservoir constructed as a part of the Lake Traverse Reservoir Dam.

Mr. RILEY. This maintenance and operation will be a continuing expense, then, will it not?

Colonel STARBIRD. Yes, sir. This project was authorized in the 1936 act, and amended by the 1938 act. It is a reservoir project which we maintain and operate.

Mr. RILEY. Will the cost of maintenance and operation decrease or increase, in your opinion, as the project advances?

Mr. GURNEE. It should remain relatively uniform. We are asking funds this year for approximately the same amount that we had last year.

CONDITION SURVEYS

Mr. DAVIS. What is this miscellaneous item called "Condition surveys" which you have not attached to any project or reservoir?

Mr. GURNEE. That is a different category. Under our navigation projects we have two projects in this river basin on which there are no maintenance requirements this year. Nevertheless we do need, at relatively frequent intervals, to make reconnaissance and condition surveys to determine whether maintenance is or will be required. This $1,000 is to examine Warroad River Harbor, and Baudette Harbor.

Mr. RILEY. Do you have much barge traffic up there?

Mr. GURNEE. No; there is no barge traffic. Both of these reservoirs are on the Lake of the Woods, and it is local traffic. There is some fishing, and some traffic between other lake ports. It runs in excess of 1,000 tons a year with a considerable amount of passenger traffic.

Colonel STARBIRD. Warroad is here [indicating], and Baudette is here [indicating].

Mr. RILEY. Thank you very much, gentlemen.

TUESDAY, MAY 3, 1955.

ARKANSAS-WHITE-RED BASIN

WITNESSES

DEPARTMENT OF THE INTERIOR

FRED G. AANDAHL, ASSISTANT SECRETARY FOR WATER AND POWER
S. D. LARSON, DIRECTOR, DIVISION OF BUDGET AND FINANCE
W. A. DEXHEIMER, COMMISSIONER
S. W. CROSTHWAIT, ASSISTANT COMMISSIONER
A. R. GOLZÉ, CHIEF, PROGRAM COORDINATION AND FINANCE DIVISION
R. J. WALTER, REGIONAL DIRECTOR, DENVER, COLO.
R. W. JENNINGS, REGIONAL DIRECTOR, AMARILLO, TEX.
D. G. WRIGHT, ADMINISTRATOR, SOUTHWESTERN POWER ADMINISTRATION
O. L. IHRIG, BUDGET AND FINANCE OFFICER

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CORPS OF ENGINEERS

COL. J. U. ALLEN, ASSISTANT CHIEF OF CIVIL WORKS FOR RIVERS AND HARBORS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. WILLIAM WHIPPLE, EXECUTIVE, CIVIL WORKS
H. COHEN, PROGRAM BRANCH, CIVIL WORKS
M. S. GURNEE, OPERATIONS DIVISION, CIVIL WORKS
EARLE H. JONES, JR., PLANNING AND DEVELOPMENT DIVISION, CIVIL WORKS

Mr. RILEY. We will take up now the Arkansas-White-Red River Basin. We will insert into the record the summary table of the budget requests and the tables showing status of funds.

(The matter referred to follows:)

Arkansas-White-Red

Appropriation	Corps of Engineers	Department of the Interior		
		Reclamation	Southwestern Power	Total
General investigations		$255,000		$255,000
Advance engineering and design	$190,000			
Construction	29,841,000			
Operation and maintenance	3,146,700	2,000	$1,134,000	1,136,000
Total	33,177,700	257,000	1,134,000	1,391,000

Arkansas-White-Red Basin

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimated)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation: Arkansas River and tributaries	$692,698	$1,037,800	[1] $873,002	[1] $1,161,080	[1] $108,700	[1] $407,600
Flood control:						
Red River levees below Denison Dam	41,719	208,657	22,441	103,921	0	0
Toronto Reservoir	5,604	5,604	109,587	297,864	0	0
Wichita and Valley Center	368,333	935,182	[2] 307,537	[2] 1,820,151	[2] 0	[2] 821,300
Carthage, Mo	0	0	0	0	0	0
East Poplar Bluff and Poplar Bluff, Mo	0	0	0	0	0	0
Oklahoma City Floodway	378,654	652,023	[3] 453,111	[3] 1,225,951	[3] 0	[3] 156,800
Ferrells Bridge Reservoir	0	0	360,893	561,521	0	249,800
Texarkana Reservoir	1,523,950	5,184,717	1,307,096	4,381,938	0	2,310,000
Multiple purpose: Table Rock Reservoir	2,485,316	2,486,930	984,929	2,827,649	0	62,50

[1] Excludes $750,000 loaned to other projects.
[2] Excludes $86,000 loaned to other projects.
[3] Excludes $200,000 loaned to other projects.

Construction and rehabilitation—Actual unobligated balances June 30, 1954, and Mar. 31, 1955, and estimated June 30, 1955, Arkansas-White-Red Basin

Project	Actual unobligated balance, June 30, 1954	Actual unobligated balance, Mar. 31, 1955	Estimated unobligated balance, June 30, 1955, field estimates as of Mar. 31, 1955		
			Deferred work	Savings	Total
Tucumcari, N. Mex.	$30,371	$4,253		$3,500	$3,500
Vermejo, N. Mex.	23,010	128,254	$61,037		61,037
Total, Arkansas-White-Red Basin	53,381	132,507	61,037	3,500	64,537

Do you have a general statement on this?

Colonel STARBIRD. I have, sir. If it pleases the committee I will give you that.

Mr. RILEY. All right, Colonel.

Colonel STARBIRD. Mr. Cohen will point out on the big map, sir, the salient features as I mention them.

GENERAL STATEMENT

The Arkansas-White Red River Basin through which three major tributaries of the Mississippi flow, includes all of the State of Oklahoma, a major part of Arkansas and portions of Colorado, Kansas, New Mexico, Texas, Missouri, and Louisiana. Its three major rivers, with their tributaries, drain an area of 280,000 square miles, which is neearly 10 percent of the land area of the United States. The Arkansas is the fourth longest river in the Nation extending 1,450 miles, while the Red and White are 1,020 and 720 miles in length, respectively.

Of the three rivers, only the Arkansas with its tributary the Canadian, are fed in any large measure from snow melt. The others depend upon rainfall and ground water for their flows. Rainfall varies tremendously in this immense region, averaging as low as 10 inches a year in parts of the Far West but with 60 inches a year near the Mississippi. Water conservation and efficient utilization is a vital problem in many sections of the basin and the recent drought years have had serious effects on the region's economy. They have reemphasized the need for additional reliable sources for agricultural, industrial, and domestic water supply.

Large areas of the basin, generally those most fully developed, are subject to serious and recurring flood. This flooding occurs throughout the basin but the most important flood problems are in the eastern half where the river systems enlarge and converge before emptying into the Mississippi or Atchafalaya. In the extreme east there are sctions which normally are overly wet and which require major drainage improvement to be most effectively used.

Then, too, the area is one in which the power demand is growing rapidly. The great flows available permit the development of reliable, large-scale hydroelectric plants when proper regulation is secured. Navigation improvements authorized to date concern only the use of the lower rivers but there is a growing demand for extension farther upstream to reach large industrial communities.

With the varied problems involved, an overall solution must be achieved by the construction of an interrelated system of all types of structures. The heart of the system must be reservoirs, largely multipurpose, on the main stem and tributaries to control the immense but erratic flows. These provide storage for all purposes—benefitting flood control, irrigation, other water supply, navigation, and permitting efficient power generation. Needed also, however, for a complete solution are facilities for controlled water importation into the upper, more-arid, section of the basin; isolated local protection works and channel improvement where reservoirs cannot provide the required degree of flood protection to highly developed areas; major drainage works in the eastern portion; and channel improvements and lock construction where necessary to improve navigation.

IRRIGATION

Agriculture in the basin is at present largely confined to dry-land farming augmented by some ground water pumped for irrigation. The limited irrigation projects in the area, however, have demonstrated the increased productivity which can result from an adequate water supply.

Two Bureau of Reclamation projects, the W. C. Austin, in Oklahoma, and the Tucumcari, in New Mexico, are already in operation in the upper basin. A third project, the Vermejo, also in New Mexico, is underway. The Canadian River project, authorized but not yet initiated, will provide municipal water for 11 communities as well as a limited amount of irrigation. In addition this project will give considerable flood-control benefit in north Texas and western Oklahoma. The proposed Fryingpan-Arkansas project, now under consideration by the Congress would divert much needed water from the water-rich slopes of the Rockies to provide municipal and agricultural water.

NAVIGATION

The authorized plan for navigation improvement contemplates channels of 9-foot depth on the Ouachita-Black, the Overton-Red River Waterway and the Arkansas River to the vicinity of Tulsa, Okla. Improvements to date include the 6½-foot channel on the Ouachita-Black, limited navigation improvements on the Red, and a portion of the emergency bank stabilization and channel rectification on the Lower Red and on the Arkansas. Funds are being requested in fiscal year 1956 to continue the latter work.

FLOOD CONTROL

The Corps of Engineers' program for reservoir storage includes 40 active projects with 23 in the Arkansas River Basin; 6 in the White and 11 in the Red. Below these reservoirs lie 7,400,000 acres of flood plain and potential damages therein approximate $42 million per year. Of these 40, 23 are complete and 4 would be continued with funds requested in fiscal year 1956.

Most of the corps' planned reservoirs and those of the Bureau of Reclamation have provision for conservation storage. The Altus and Texoma projects already have been tapped by municipal and industrial water systems. Regulated flow from the Fall River, Hulah,

and Canton projects is being used with great benefit during the present drought. Texarkana and Ferrells Bridge Reservoirs, now under construction, contain extensive storage allowances for direct municipal and industrial water supply.

Other active authorized works for flood protection include 46 local protection projects and 15 channel improvements. 33 of the local protection works have been completed. 8 are under construction and 2 additional are proposed for initiation and completion with fiscal year 1956 funds. Of the 15 channel-improvement works, 7 are complete and 5 are under construction. One of these is to be continued with funds proposed in the fiscal year 1956 budget.

POWER

Eleven of the 40 active projects include provision for hydroelectric power generation by the corps and will have ultimately an installed capacity of approximately 1,200,000 kilowatts. The Secretary of the Interior has established the Southwestern Power Administration to market power from the corps' projects. This Administration operates and maintains a system of high-voltage transmission lines and related facilities and contracts for the use of facilities and for the sale, purchase, and interchange of power with other systems in the area. To date, 7 of the 11 corps' power projects have been completed with an installed capacity of 471,000 kilowatts. The Table Rock project, 1 of the 4 reservoirs under construction, will have an initial capacity of 100,000 kilowatts and is scheduled to deliver its first power in December 1958.

OTHER FUNCTIONS

A subsidiary and important benefit developing from the integrated plan is that of recreation. In an area such as this basin, subject to prolonged dry periods and with little natural lake area, reservoirs are intensively used for recreation. As an example, visitors spent some 5,108,000 visitor-days at Denison's Lake Texoma during 1954.

CONCLUSION

The problems of the Arkansas-White-Red in the water-resources field are extensive and complex. Only a comprehensive system can provide for best use of the water available and for control against the damages that can be caused by not providing that control. The Arkansas-White-Red Inter-Agency Basin Committee survey, nearing completion, has confirmed the necessity and worth of all the projects described. The President's budget recommends funds to carry on construction of some 9 projects already under way and the initiation of two small new starts. The continuing projects are: the Bureau of Reclamation's Vermejo project, and the corps' Ferrells Bridge, Texarkana, Toronto, and Table Rock Reservoir; the Wichita and Oklahoma City local protection works; and emergency bank stabilization on the Arkansas and Red Rivers. The two new starts are local protection works at East Poplar Bluff and at Carthage, Mo.

Mr. RILEY. The work contemplated on these rivers tends to minimize the flooding into the lower Mississippi? Is that it?

Colonel STARBIRD. Reservoir storage has definite effect on the lower Mississippi; yes, sir. It is part of the overall comprehensive plan for the lower Mississippi.

NAVIGATION

Mr. RILEY. I note on page 2 that you suggested that the navigation features might be extended further upstream.

Is that a feasible project?

Colonel ALLEN. The existing authorized project, Mr. Chairman, for navigation provides for extensive navigation on the Arkansas River. The cost of the project is quite excessive, and the only work on the Arkansas River at the present time is emergency bank stabilization, which, if the navigation project is ever constructed, will fit in with the ultimate navigation but it is not intended as an overall attack on the Arkansas River in order to stabilize it for navigation.

It is an extremely expensive project to provide navigation up to the vicinity of Tulsa in the upper reaches of the Arkansas.

Mr. RILEY. I note that Colonel Starbird, in his statement, said that it was possible to go to the vicinity of Tulsa.

Does that mean right up to Tulsa, or how close?

General ITSCHNER. Tulsa is close to the river. We go to the nearest point. It is very few miles, about 12 miles at most, from the port which would be on the Arkansas River. Catoosa is the name of the port on the Arkansas River for Tulsa.

Mr. RILEY. I gather from the statement you made that you do not think it is economically feasible at this time to provide for navigation that high up the river. Is that right?

General ITSCHNER. The statement was made by Colonel Allen that the cost was excessive. I do not think he really meant that. He meant that the cost was very great.

We think that the economic justification of the project can be demonstrated at this time.

On the other hand, we feel that we should not say at this time that the long-range program should be commenced, but only those segments of it which clearly are justified at this time, and we should wait until a later date to start the remainder.

Mr. PHILLIPS. How deep is the channel now?

Mr. RILEY. Six and a half feet according to the statement.

General ITSCHNER. Parts of the Arkansas are extremely shallow. It varies a great deal. At times I imagine it is 2 or 3 feet deep and goes up to almost any amount you want to say, up to 20 or 30 feet.

It is a wandering, meandering stream with a great deal of silt in it in the upper reaches, and much farther downstream than Tulsa, and consequently it cannot be considered to be a channel.

Mr. RILEY. General, you stated that the cost would be very great. Do you have any estimated cost of what the navigation features would cost? Do you have a reasonable estimate on that?

General ITSCHNER. It is pretty hard to segregate out the navigation project from the overall improvement project for the Arkansas River.

The cost of the overall project, including reservoirs, bank protection, channelization, river improvement, powerplants, and so on, is slightly over $1 billion.

If the project were not built to include navigation, then a good part of the project could not be justified without the navigation.

COST OF RECLAMATION PROJECTS

Mr. RILEY. I note here that you have some reclamation projects—W. C. Austin, in Oklahoma, Tucumcari, in New Mexico, Vermejo, in New Mexico.

Do you know within reason the cost of these projects?

Colonel STARBIRD. This is a joint statement, sir. I would like to ask if the Bureau could answer that. Those are their projects, sir.

Mr. CROSTHWAIT. The operation of those projects has been turned over to water users and they are fully operating them with the exception of the storage facilities of the W. C. Austin project. That project has some flood control, and for that reason we have retained the operation of the storage facility of the W. C. Austin project.

As I recall, our estimate for the Government cost of operation and maintenance runs somewhere in the nighborhood of $8,170 for next year, of which $6,170 will be advanced by the water users.

Mr. RILEY. And the other two are operated exclusively by the local interests, or by the water users?

Mr. CROSTHWAIT. Yes, fully turned over to the water users.

FRYINGPAN-ARKANSAS PROJECT

Mr. RILEY. In the Fryingpan-Arkansas project which is now under consideration, I note you use a term

Would divert much needed water from the water rich slopes of the Rockies to provide municipal and agricultural water.

Do I understand you would utilize some water which is going to waste or take it away from a section which already needs it?

Mr. CROSTHWAIT. It will provide a transmountain diversion of water to an area where it is needed. It is my understanding that it would not deprive any of the users on the other side of the mountain of water they are now utilizing or would require.

Mr. RILEY. I am a little intrigued by the word "divert."

You do not think you would be depriving anybody in the area of water in order to provide water for other areas?

Mr. CROSSTHWAIT. That is right. That is again one of these transmountain diversions similar to the Colorado-Big Thompson project where the rainfall is quite heavy on one side of the range and relatively light on the other.

Mr. RILEY. Off the record.

(Discussion held off the record.)

Mr. RILEY. Is there any power connected with this Fryingpan-Arkansas project?

Mr. CROSTHWAIT. There is power involved in it.

Mr. RILEY. There is some power?

Mr. CROSTHWAIT. Yes, sir.

POWER PROJECTS

Mr. RILEY. Do I understand that 7 out of the 11 power projects that are being constructed by the Corps of Engineers have been completed and you are now working on 4?

Colonel WHIPPLE. Seven have been authorized and completed. We are working on one more.

Mr. RILEY. Where does the 11 come into the picture? Have the other three been authorized?

Colonel WHIPPLE. There are three others that have been authorized and have not yet been constructed. One of these is Greer's Ferry. Another is the Beaver project authorized in the upper White River. I do not recall the eleventh at the moment. I will insert it.

(The matter referred to is as follows:)

The third one is Oologah Dam in the Verdigris River.

Mr. RILEY. Is there any planning money in the request for these three projects not under construction?

Colonel WHIPPLE. Yes. Greer's Ferry has planning funds requested and there is also a small amount deferred for restudy, planning funds for the DeGray project which are authorized but currently listed as deferred for restudy. It is not on the active list and not included in the 11.

Mr. RILEY. Table Rock is the one constructed?

Colonel WHIPPLE. Table Rock is the one under construction. That is correct.

NEW STARTS

Mr. RILEY. Have you any general questions on the statement, Mr. Davis?

Mr. DAVIS. In this entire basin, referring to 1956, there are only two new starts contemplated. Is that correct?

Colonel STARBIRD. Yes.

Mr. DAVIS. Local flood-protection projects?

Colonel STARBIRD. Yes.

Mr. DAVIS. Both of them are one-shot propositions?

Colonel STARBIRD. Yes.

Mr. DAVIS. Both of them in Missouri?

Colonel STARBIRD. That is correct, one on the far east and one on the far west on different river systems.

WEDNESDAY, MAY 4, 1955.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. RILEY. The committee will come to order, and we will take up this morning first advance engineering and design in connection with the Arkansas River and the Red and White Rivers.

I believe you are asking for $190,000 for this year for work on 3 flood-control projects, 1 multiple-purpose project and 1 deferred project, is that correct?

Colonel STARBIRD. Yes, sir; 3 flood-control, 1 multiple-purpose, and 1 deferred.

Mr. RILEY. Without objection I will ask that pages 2 through 5 be inserted in the record at this point.

(The matter referred to follows:)

ARKANSAS-WHITE-RED

JUSTIFICATION OF ESTIMATE—CONSTRUCTION, GENERAL, FISCAL YEAR 1956

Advance engineering and design

Funds in the amount of $190,000 will be applied to advance engineering and design on 4 projects and restudy of 1 project in the Arkansas-White-Red drainage area. One of those projects will be brought to the stage where construction can be initiated. The review of the project in the "deferred for restudy" category will be completed. The 4 projects on which planning will be accomplished have a total estimated cost of $92,712,000 and consist of 3 flood control projects and 1 multiple purpose project.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Navigation projects: (None).				
Flood control projects:				
Arkansas: Calion	$537,000	----------	$40,000	$497,000
The maximum flood of record (1945) inundated the entire town, a large lumber mill and Lake Calion. Ouachita River floods inundate portions of the areas on an average of once every 2 years. The Calion project would eliminate this flood hazard, assuming the Blakely Mountain Dam on the Ouachita River, now under construction, is completed.				
Kansas: Strawn Reservoir	42,010,000	$265,000	25,000	41,720,000
The Strawn Reservoir will provide 67 percent of the total flood control storage in the 4-reservoir system consisting of Strawn, Marion, Council Grove and Cedar Point Reservoirs. The project is a key unit in the four-reservoir system and when placed in operation will result in realization of its portion of benefits. The system of 4 reservoirs will be operated primarily for much needed flood control in the Cottonwood and Grand (Neosho) River Valleys above the Pensacola Reservoir, with incidental benefits to the Arkansas River Valley below Muskogee, Okla.				
The following economic data were obtained by direct field surveys relative to the flood of June–July 1951. About 14,000 persons reside within the flood plain between the authorized dam sites and the Pensacola Reservoir, excluding the flood plain area within Strawn Reservoir. The flood plain area, consisting of 307,000 acres of very fertile and highly developed agricultural lands, will annually yield crops valued at $12,630,000 when not affected by floods. The 3,758 residential units and 761 commercial and industrial units located within 21 municipalities and unincorporated villages and other urban properties sustained damages estimated at $9,129,000 during the June–July 1951 flood. In the rural area damages were sustained in the amount of $21,302,000 consisting of crop losses of $8,521,000 and physical property losses of $12,781,000. Included in these losses of physical property is $3,025,000 for railroads, highways and a network of improved farm-to-market and feeder roads.				
Oklahoma: Enid	965,000	----------	25,000	940,000
Construction of the project would give flood protection to 190 acres of urban and potential urban property having a valuation of over $11,000,000. About 90 percent of the total damages in the area is sustained by commercial and industrial properties. The maximum flood of record that occurred on 29 July 1950 caused an estimated loss of $981,000. Commercial and industrial properties directly affected by floods consist of lumber yards, farm equipment distributors, wholesale fruit and vegetable business, oil supply concerns, machine shops, grocery stores, and other similar commercial and business enterprises common to marketing centers. Other improvements include a city-owned convention hall and sewage disposal plant, streets, utilities, and communication facilities, railroad property, public park improvements, and a hospital.				
Total flood control	43,512,000	265,000	90,000	43,157,000

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956
Multiple purpose projects including power:				
Arkansas: Greers Ferry Reservoir	$49,200,000	$210,000	$30,000	$48,960,000
The Greers Ferry Reservoir is the downstream unit in the approved plan of development for flood control and other purposes in the White River Basin. The Basin plan provides for construction of 5 multiple-purpose projects including power, of which Greers Ferry Reservoir is one, and 4 flood control reservoirs. Three of the projects are complete and another is under construction. The Greers Ferry Reservoir, which will provide 935,000 acre-feet of flood control storage, has high priority in the sequence of construction of the 5 remaining reservoirs in the system. The project will regulate flows from 1,147 square miles of the drainage area of Little Red River which is one of the larger contributors of flood flow to the White River. Regulation of flows from this area will benefit the 77-mile agricultural reach between the dam site and the mouth of Little Red River. In conjunction with the other authorized reservoirs, floods will be modified in the 182-mile reach of White River downstream from the junction of Little Red River. It is estimated that 26,000 people reside in the flood plains of the two streams downstream from the Greers Ferry dam site. About 886,000 acres of land and improvements, valued at more than $68,000,000 along the Little Red River and lower White River will be benefited by the flood control feature of the project. About 28 miles of Federal highways and 48 miles of railroad will be beneficially affected. Approximately 18 percent of the flood losses prevented by the reservoir system on the lower White River downstream from the mouth of Little Red River will be attributable to the Greers Ferry project. The Greers Ferry Reservoir powerplant will initially have an installed capacity of 64,000 kilowatts and will produce 115 million kilowatt-hours of annual primary energy and 182 million kilowatt-hours of average annual energy. Operated in the system with other Federal hydro-projects, the power from Greers Ferry will be delivered near the dam site into the interconnected transmission network serving portions of Arkansas, Kansas, Louisiana, Mississippi, and Missouri. The Federal Power Commission has indicated that the entire power output from the Greers Ferry project can be absorbed into the area load during the period 1955–60 and has recommended that consideration be given to increasing the initial installed capacity to 96,000 kilowatts.				
Reexamination of projects in "Deferred for restudy" category: DeGray Reservoir, Ark	70,000	----------	70,000	----------
Grand total, advance engineering and design	92,782,000	475,000	190,000	92,117,000

Mr. RILEY. Now, apparently, the benefit-cost ratios of the Strawn project and the Greers Ferry multiple-purpose project are 1.1 to 1, and 1 to 1, respectively. How do these benefit-cost ratios compare generally with other projects in the advance engineering and design category?

STRAWN RESERVOIR

Colonel STARBIRD. I shall answer on the Strawn project. The benefit-cost ratio of 1.1 to 1 which is given in the planning report is the benefit-cost ratio for a system of four reservoirs. No one of the four has been built as yet. We have not the exact computation of the benefit-cost ratio of Strawn alone, but Strawn will realize 67 percent of the

total benefit of the 4 reservoirs if the 4 are completed. It is the best, therefore, of the reservoirs concerned. We estimate that the benefit-cost ratio of Strawn alone would be somewhere in the neighborhood of 1.5 to 1 instead of 1.1 for the system.

Strawn's funds requested in this case are funds to permit the investigation of an alternative site. We had a record flood on this river in 1951 after planning was started. That record flood showed that added storage was needed in that particular reservoir. To get the added storage we would have a very heavy relocation cost.

We believe that there is a possibility that there can be developed a plan at a downstream site in view of this new flood of 1951.

Does that answer your question, Mr. Chairman, sir?

Mr. RILEY. Now, referring to these other projects which you mentioned that are more or less incorporated with Strawn, do I understand that they cut down the benefit-cost ratio?

Colonel STARBIRD. It is probable that some of those would have a lesser benefit-cost ratio, sir. We have not asked for any funds for any of those, and this would be investigated further at a later time.

Mr. RILEY. Would Strawn be a feasible project without those, or is it necessary to put the others in?

Colonel STARBIRD. No, sir, it would be feasible without the others.

GREERS FERRY PROJECT

Mr. RILEY. What about the Greers Ferry project?

Colonel WHIPPLE. That is a project, Mr. Chairman, which is a victim of our new criteria.

That previously had a higher benefit-cost ratio, but on account of the consideration of the tax element as we are doing with all of our power projects, it has now a marginal benefit-cost ratio which is lower than those on which we normally recommend construction.

The reason for requesting planning funds for this project is because of the fact that we believe that we have found ways in which that project can be built for less than the current cost estimate by a very considerable margin, and if that is the case, then the project will have a benefit-cost ratio, even under the new criteria, high enough that we might be able to recommend the initiation of construction.

Planning funds will not be used to advance more detail design data, but to make a reexamination of the potentialities of cost reduction by substituting an earth dam for a concrete dam which, apparently, was not adequately explored in the initial investigations, and we believe that there is a very good chance that we can substantially reduce the cost of the project.

Mr. RILEY. What was the benefit-cost ratio before the new criteria had to be considered?

Colonel WHIPPLE. It was about 1.2 to 1. I would like to insert the exact figure in the record, but it was considered a reasonable benefit-cost ratio.

(The matter referred to follows:)

The benefit-cost ratio was 1.2 to 1.

Mr. RILEY. But do you believe that further study will give you a better benefit-cost ratio than that which is presently indicated?

Colonel WHIPPLE. Yes, sir, and that is why we are requesting a small amount of planning funds, to make these more general estimates,

and if the results are satisfactory we will come in next year and request a major amount of planning funds to complete the design work. Otherwise, we will drop the project from further consideration for the time being.

Mr. RILEY. What did I understand was the average benefit-cost ratio of other projects in the advance engineering and design category?

Colonel WHIPPLE. The multiple-purpose projects vary generally from about 1.15 to 1, to 1.9 to 1. None that I know of, where we are proceeding with detailed design, have as low a benefit-cost ratio as this one. There are no other multiple-purpose projects similar to this in the advance engineering and design category.

Mr. RILEY. Thank you.

STRAWN RESERVOIR

Mr. DAVIS. In the case of Strawn Reservoir, for which planning funds are requested, apparently a considerable amount, $265,000, has been allocated for planning in previous years.

Mr. PHILLIPS. Is that all planning?

Colonel STARBIRD. Yes, that is all planning.

Mr. DAVIS. But nothing was requested last year as I recall it. What is the story behind that?

Colonel STARBIRD. The funds that have been allocated, sir, actually were in the fiscal year 1952. The major portion of the funds that they carried over on planning since 1952, as I remember, were to complete a definite project report on this project, sir, which was completed about 1 year ago. The funds requested brought the planning for the current site to a point where we could initiate the design and plans and specifications. However, as I have mentioned, it also showed that the relocation costs would be exceedingly high.

For that reason we have requested this added sum in order to investigate the possibility of a site in the reach about 15 miles downstream from the current site, and if we find that site suitable, we shall develop it to a definite planning report stage.

Much of that data that we have already gotten such as map data, hydrology data and hydrology studies and the like will be useful in connection with the new site. However, to answer your question specifically, we were carrying on our planning with money that had been appropriated in the earlier years.

Mr. DAVIS. That is not what you consider a usual or normal consideration, is it?

Colonel STARBIRD. No, sir, it is not normal. It was really brought about by this flood that occurred near the beginning of our planning, and on analysis it was found that we needed greater storage, and on analyzing the need of that greater storage we ran into the problem of the amount of relocations involved.

CALION LEVEE PROJECT

Mr. DAVIS. Is the Calion project a levee project?

Colonel STARBIRD. It is a levee project, quite a small levee project, having an estimated Federal cost of $537,000, and involving a construction of about 2.9 miles of low levee.

Mr. DAVIS. $40,000 represents your entire anticipated allotment for planning?

Colonel STARBIRD. It does, sir. That will bring it to construction.

Mr. PHILLIPS. How much?

Colonel STARBIRD. $40,000 is the amount requested in the budget.

Mr. DAVIS. What is the benefit-cost ratio?

Colonel STARBIRD. The benefit-cost ratio is 1.32 to 1, sir.

Mr. DAVIS. How large is Calion?

Colonel STARBIRD. Calion is a city of about 600 persons altogether, sir, a town of 600 persons.

Mr. DAVIS. Locate that on the map, please.

Colonel STARBIRD. It is right about here, sir, on the map [indicating]. It is not specifically shown, sir.

Mr. DAVIS. Is it right on the Ouachita?

Colonel STARBIRD. It is on the west bank of the Ouachita, just north of the Louisiana line.

Mr. DAVIS. How far downstream is it from where you will build that dam?

Colonel STARBIRD. It is approximately 60 miles below Blakely Mountain. It is just below the town of Camden, which is shown here. Here [indicating] is Camden. The design takes into consideration the reduction of flood heights that Blakely Mountain will give.

Mr. DAVIS. Well, that is about a thousand dollars per person, or you are getting pretty close to that. How much would it cost to relocate the village? It would not cost that much, would it?

Colonel STARBIRD. I believe it probably would. I have not the specific figures. There is a crossing of the Rock Island and Pacific Railroad there, and there is a large lumber company there. The total area involved is some 700 acres. The estimate of the value of the property within the area is $1,645,000, sir. There are about 536 residents altogether within the area, and there are about 30 persons nonresident who come in to work in the area.

ENID, OKLAHOMA

Mr. DAVIS. At Enid, Okla., where the request is $25,000, will that do the planning job, or will that simply initiate the planning?

Colonel STARBIRD. That will initiate the planning only, sir. An estimated $38,000 more will be required to bring it to construction readiness.

Mr. PHILLIPS. How many people are there in Enid?

Colonel STARBIRD. It has a population of 37,000 persons, sir. These figures I am giving on population are from the 1950 census.

Mr. DAVIS. What is the benefit-cost ratio?

Colonel STARBIRD. 1.29 to 1.

Mr. DAVIS. When was this authorized?

Colonel STARBIRD. This project was authorized in the Flood Control Act of 1954, sir.

Mr. RILEY. Will you yield there for a question, Mr. Davis?

Mr. DAVIS. Yes.

CALION

Mr. RILEY. What effect will the Blakely Mountain Dam have on floods at Calion?

Colonel STARBIRD. It has a reductive effect. I do not have the exact number of feet of reduction that would be effected on a major flood.

Mr. RILEY. You think that it would take both projects to provide effective control?

Colonel STARBIRD. It would, sir.

GREERS FERRY RESERVOIR

Mr. DAVIS. Tell us how this Greers Ferry Reservoir fits in with the other projects in that area, will you?

Colonel WHIPPLE. Greers Ferry Reservoir, sir, is part of the comprehensive plan for the White River Basin, and its flood-control effect is computed on one of the major tributaries of the White River. It plays its part in the reduction of floods in that very fertile and productive area of the lower White River Basin, and also contributes to flood control of the major floods on the Mississippi River, such as that of 1927.

It is a multiple-purpose project. However, the storage is not used by dams downstream, so that as regards power it functions as an individual project.

The Little Red River itself has quite severe floods, and the people in that area are very anxious to obtain flood control in that valley in addition to the floods on the main stem of the White River downstream.

Mr. DAVIS. You have had planning allotments here previously of $210,000. This is the first time I can recall this project coming before us in the 4 years or so that I have been on this committee. Has there been that much delay in the planning?

Colonel WHIPPLE. Yes, sir; there has been some delay because we have run into the question of benefit-cost ratio and the basic economics of the project, and those planning funds are now requested to review the status of the project and the possibility of reducing the overall cost sufficiently to continue planning.

In addition it was previously a project which was planned as a flood-control project with probabilities for future power development, and it is actually better as a full multiple-purpose project. The authorization was revised last year in order to allow power as part of the initial installation.

Mr. DAVIS. By inserting power into it you then obtain a more satisfactory benefit-cost ratio; is that the idea?

Colonel WHIPPLE. Yes, sir, we do; although in the light of the new criteria, the project, with its present estimated cost, is still marginal, unless the overall cost estimate can be reduced. However, it is still better as a multiple-purpose project than as a single-purpose project for flood control alone because the additional storage does not require a very great increase in the height of the dam.

Mr. DAVIS. Were there some difficulties in this area with respect to some of the figures you used on anticipated rates, and so forth? What did you use in your benefit-cost ratio on this project? Did you use your current rate, or some other anticipated rate?

Colonel WHIPPLE. You mean on the value of power?

Mr. DAVIS. Yes.

Colonel WHIPPLE. I can give that to you in a second, sir.

That is based on $17.25 a kilowatt plus 1.5 mills for energy value. That represents a rather low rate for energy, characteristic of this area with its good fuel resources, and $17.25 is slightly lower than

in certain parts of the country, but is characteristic of the costs of steam plants in this general area.

Mr. DAVIS. Is that the production cost you are giving?

Colonel WHIPPLE. Yes, for comparable amounts of capacity. These are the latest available figures we obtained from the Federal Power Commission.

Mr. DAVIS. Those are the current rates, then; are they?

Colonel WHIPPLE. They are the current costs of production for modern steam plants. They are not exactly the same.

DE GRAY RESERVOIR

Mr. DAVIS. We have the De Gray Reservoir. That also is a new one, as far as my recollection goes.

Colonel WHIPPLE. That is correct.

Mr. DAVIS. I am not sure I understand the way those figures are set up there. Referring to the total estimated Federal cost of $70,000, is that simply the cost of the restudy?

Colonel WHIPPLE. Yes, sir; that is correct.

Mr. DAVIS. As it stands now, then, you are not in a position to indicate the estimated Federal cost of the project itself; is that correct?

Colonel WHIPPLE. Yes, sir; we have a tentative cost estimate which was made in 1952 and has not been brought up to date, but it is probably approximately correct. It is $25,495,000 for the project as a whole.

Mr. DAVIS. Where is that located?

Colonel WHIPPLE. It is on the Caddo River, a tributary of the Ouachita, and it would be similar to the Narrows and Blakely Mountain Dams in the same watershed, which are also flood-control and power projects. The three of them were designed originally to operate as a system for flood-control benefit in the area, and we have a considerable number of requests for the completion of the flood-control plan.

This project was placed in the deferred-for-restudy category about 2 years ago because of its relatively low benefit-cost ration.

There have been no planning funds requested.

There is a continual interest in that project and in flood control on the part of the people in the area, and these funds are requested to make an analysis in accordance with the procedures which we have recommended for changing the categories of projects.

At the present time we consider this project not eligible for construction, and not eligible for detailed plan and design, and these funds are required to make a reexamination in the light of the new criteria to see whether the project can be found economically feasible and suitable to carry on the detailed design and construction.

Mr. DAVIS. Would it be unfair for me to say that I get the impression here on these planning projects that we are rehashing a lot of them that did not look too good as a result of your first study here? In order to proceed with them what does that do to the probably hundreds of projects that are all ready and that have shown a very favorable benefit-cost ratio that we are probably not proceeding with at the present time, but instead of that we are trying to bring some of these along that do not look too good?

Colonel WHIPPLE. There is certainly that possible interpretation, sir.

On the other hand, we are not requesting funds at this time to proceed with detailed planning and design of either of these two projects. We are requesting funds to clarify their status because flood control in both of these areas is required, and these are parts of the system.

We certainly do not believe that it would be right to initiate construction of either one of them until the economics and engineering have been satisfactorily defined. However, it is always unsatisfactory to keep authorized projects in sort of a limbo where they are neither approved for construction nor definitely disapproved. There are advantages in clarifying the status of them, particularly with a view to the relationships with other parts of the system and the plans of the people in the area.

We are only requesting deferred-for-restudy funds in the case of a small number of projects this year, and this is the first time that procedure has been used.

When we put approximately $4 billion worth of projects administratively into deferred and inactive categories, naturally they still remain authorized and there does have to be some procedure by which thes projects can be shifted from the deferred back to the active category.

Mr. DAVIS. You mentioned new criteria which are more rigid or more stringent.

Colonel WHIPPLE. That is part of the difficulty as far as these projects are concerned. It is the entire difficulty as far as the Greers Ferry project is concerned. Otherwise it might have a satisfactory benefit-cost ratio today, although it would still be desirable to go back and see whether it could be improved by this new design.

Mr. DAVIS. I think that a project that had a questionable benefit-cost ratio under the old criteria would have a tough time making the grade under the new criteria. Is that the situation in the case of this last one, the De Gray project we have been talking about?

Colonel WHIPPLE. Yes, sir. We have no way of guaranteeing anybody, sir, that the results of this examination are going to be favorable.

General ITSCHNER. I might add, sir, that the projects that we have selected for restudy are those where we have some reason to believe that they might be justified.

POWER PROJECTS

Mr. PHILLIPS. Is there only one project that has power connected with it, Greers Ferry?

Colonel WHIPPLE. Among the planned projects?

Mr. PHILLIPS. In those that we are talking about this morning.

Colonel WHIPPLE. The De Gray project is multiple purpose also.

Mr. PHILLIPS. That would have power?

Colonel WHIPPLE. Yes.

Mr. PHILLIPS. Will you give me again the estimate that you said had been made in 1952 for the De Gray project?

Colonel WHIPPLE. $25,495,000.

Mr. PHILLIPS. For $25 million how much of a powerplant are you going to plan?

Colonel WHIPPLE. Tentatively 32,000 kilowatts of installed capacity.

Mr. PHILLIPS. You do not have the benefit-cost ratio on De Gray?

Colonel WHIPPLE. No, sir. It was, however, approximately unity, and under the new criteria if the benefit and cost figures which were originally arrived at were confirmed by this reexamination it would be substantially below unity. However, it is the purpose of the examination to determine that.

Mr. PHILLIPS. I do not think you were here, Colonel, but when the corps was in here before and we were talking about the benefit-cost ratio, we discovered that while you based your benefit-cost ratio on the figures provided by the Federal Power Commission, the Bureau of Reclamation then sold the power at rates less than the Federal Power Commission figures, or in some instances it was apparent that they had.

Colonel WHIPPLE. Yes.

Mr. PHILLIPS. That would throw your ratio up. I presume, therefore, you would not have a balance in the benefit-cost ratio for De Gray if that were to take place. You provide the power, and what happens to it after that is not your responsibility. So, in fact, the benefit-cost ratio is set up on the assumption that the power will be sold, presumably, at the rates which are indicated by the Federal Power Commission, am I right?

Colonel WHIPPLE. No, sir; not on that assmuption, but on the assumption that we consider those values established by the Federal Power Commission are approximately what we could obtain for the power in the open market if you could charge what the traffic will bear.

Now, it is part of our responsibility to see that there is a reasonable prospect of the project being able to pay out, and we would not proceed with the construction of the De Gray project under our current criteria unless we verified that it would be built to pay out.

Mr. PHILLIPS. Greers Ferry.

Colonel WHIPPLE. Yes, unless we verified that it could be built for less than that amount, or the benefits would be greater than those shown in our present tabulation, we would not initiate construction.

Mr. PHILLIPS. I have the figures of 600 people in Calion, and 37,000 in Enid, is that right?

Colonel STARBIRD. That is correct.

Mr. PHILLIPS. How many are there in De Gray? Is De Gray a community?

Colonel WHIPPLE. No, sir; it is not.

Mr. PHILLIPS. What is the community that you are protecting?

Colonel WHIPPLE. It is part of a comprehensive project in the Ouachita Basin, and provides protection to a number of communities.

CONSTRUCTION, CORPS OF ENGINEERS

ARKANSAS RIVER BANK STABILIZATION AND CHANNEL RECTIFICATION

Mr. RILEY. We will pass on over now into the construction projects. Without objection we will insert pages 7 through 9.

62216—55—pt. 1——29

(The matter referred to follows:)

ARKANSAS RIVER AND TRIBUTARIES, ARKANSAS AND OKLAHOMA.—BANK STABILIZATION AND CHANNEL RECTIFICATION (EMERGENCY CONSTRUCTION) (Continuing)

Location.—Emergency bank stabilization and channel rectification construction at specific critical localities along 3530 miles of the main channel between mile 376.5 and mile 23.5, where project levees, bridge and utility crossings, and other improvements of national importance are endangered by bank caving and migrating bends. The Arkansas River is a major tributary of the Mississippi River and enters the Mississippi at a point about 575 miles above the Head of Passes, La.

Authorization.—1950 and prior Rivers and Harbors and Flood Control Acts.

Benefit/cost ratio.—Not applicable to emergency construction.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$25, 286, 000	
Estimated local cash contributions	0	
Estimated project cost	25, 286, 000	
Appropriations to June 30, 1954	13, 835, 000	
Appropriations for fiscal year 1955	3, 000, 000	
Appropriations to date	16, 835, 000	67
Appropriations requested for fiscal year 1956	3, 000, 000	79
Balance to complete after fiscal year 1956	5, 451, 000	

Physical data

Reach	Revetment and dikes	Excavation for pilot channels
	Feet	*Cubic yards*
Wilsons Rock, Okla., to Fort Smith, Ark	80, 500	1, 990, 000
Fort Smith to Mill Creek Mountain	28, 600	346, 200
Mill Creek Mountain to Morrisons Bluff	14, 800	350, 000
Dardanelle Rock to Morrilton Bridge	50, 000	532, 000
Morrilton Bridge to Fourche La Fave	10, 500	327, 400
Little Rock to Jefferson County Free Bridge	70, 000	2, 726, 000
Jefferson County Free Bridge to Rob Roy Bridge	17, 000	
Rob Roy Bridge to Arkansas Post Canal	44, 700	
Arkansas Post Canal to Yancopin Bridge	11, 600	

Status (Jan. 1, 1955)

	Percent	Completion schedule
Wilsons Rock, Okla., to Fort Smith, Ark	68	June 1957.
Fort Smith to Mill Creek Mountain	3	June 1958.
Mill Creek Mountain to Morrisons Bluff	25	March 1957.
Dardanelle Rock to Morrilton Bridge	75	April 1957.
Morrilton Bridge to Fourche La Fave	100	
Little Rock to Jefferson County Free Bridge	55	January 1958.
Jefferson County Free Bridge to Rob Roy Bridge	73	May 1957.
Rob Roy Bridge to Arkansas Post Canal	60	October 1957.
Arkansas Post Canal to Yancopin Bridge	37	April 1957.

JUSTIFICATION

Bank stabilization and channel rectification is an integral feature of the approved multiple-purpose plan of development of the Arkansas River. The Arkansas River is subject to unusually severe shifting of alinement, migration of bends, and caving banks. Each major deviation from its course if left uncontrolled produces great economic loss to vital communication facilities, transportation routes, power and fuel transmission lines, and results in the

irreplaceable loss of fertile agricultural lands. The present program of emergency bank stabilization and channel rectification is limited to specific critical localities where project levees, bridge and utility crossings, and other improvements of national importance are threatened with damage or destruction by caving banks and migrating bends.

The Federal Government together with local improvement districts have invested more than $37 million in the construction of levees to protect more than 2½ million acres of agricultural and urban lands within the flood plain of the river between Tulsa and the mouth. Also, there are 115 crossings of the Arkansas River between Tulsa and the mouth. These crossings consist of highways, railways, pipelines, waterlines, and transmission lines. Many of the pipeline crossings carry petroleum products, including natural gas, to large industrial centers in the northern and eastern states. The loss of these crossings would have a far-reaching effect on a wide area of the Nation, and an immediate impact on military installations and defense industries.

Fiscal year 1956.—Reach and feature item:	*Reach total*
Wilsons Rock, Okla., to Fort Smith, Ark	$1,050,000
Fort Smith to Mill Creek Mountain revetment below Van Buren	500,000
Little Rock to Jefferson County free bridge:	
Browns Bend	324,800
Brodie Bend cutoff	775,200
Rob Roy Bridge to Arkansas post canal Mud Lake revetment	350,000
Total fiscal year request	3,000,000

Mr. RILEY. You are asking for $3 million for next year.

Is that the same amount which was requested the year before?

Colonel ALLEN. It is, sir.

AUTHORIZATION

Mr. RILEY. Is this a navigation or flood-control project primarily?

Colonel ALLEN. This work is being done, sir, under a navigation authorization which contemplates a navigation channel of 9-foot depth on the Arkansas River.

Since authorization, certain emergency situations have arisen with respect to bank erosion and bank stabilization on the Arkansas.

We were directed to proceed with an emergency bank stabilization program which would have as its purpose emergency work along the banks of the Arkansas to protect the levees which are already constructed, to protect bridges, and utility crossings from damage by reason of continuation of bank erosion.

Mr. RILEY. The emergency aspect of it is not the navigation, as I understand it, but it is to protect the stabilization work which already has been done. Is that right?

Colonel ALLEN. You are correct, sir. It is not an emergency for navigation. It is being done under a navigation authorization, but the benefits are not to navigation.

Mr. RILEY. I am curious to know why it is put under that classification. Why is it not done under the bank stabilization program or flood control if that is the actual emergency?

Colonel ALLEN. The original authorization for the Arkansas, sir, which provided for this shallow-draft navigation project was made in 1946.

Subsequent to that, that authorization was modified to embrace within that navigation authorization these emergency bank protective measures.

As you point out, the benefits are not to navigation. They are primarily savings of damage to levees and utility crossings, but authorizationwise it is a modification of a navigation project.

NAVIGATION

Mr. RILEY. Is any tonnage being shipped over the river now?

Colonel ALLEN. Navigation on the Arkansas is all in the lower reaches. In 1953, tonnages were on the order of 500,000.

Mr. RILEY. How far up does that go?

Colonel ALLEN. Little Rock, sir. There is no improvement in the river for navigation, there is only run-of-the-river navigation.

STATUS OF WORK

Mr. RILEY. What is the status of the bank stabilization program?

Colonel ALLEN. We are proceeding with the funds appropriated last year and expect to continue with the funds requested this year to stabilize the most emergent situations which arise.

In an emergency bank protection program, it is not possible to treat the river as one where we would ask for complete treatment and complete stabilization. It is necessary each year to assess the emergency conditions and request funds which will most benefit the areas which are threatened by bank caving.

Mr. RILEY. Is the work being done of such a nature that it can withstand flood or erosion before the other reaches are taken care of?

Colonel ALLEN. In any emergency work of this type there is always a calculated risk which must be taken. It is not like a situation where we proceed and attempt to stabilize the entire river. It is strictly an emergency program, and if we were hit by a severe flood or a number of severe floods there is the possibility that some of these emergency measures may be damaged.

Mr. RILEY. What has been your experience along that line, Colonel?

Colonel ALLEN. We have had very low flows in the last several years, Mr. Riley, and so far the work which has been done in the last 3 or 4 years is holding up very well. It is requiring a minimum amount of maintenance.

Mr. RILEY. Do you have a target date for the completion of this work?

Colonel ALLEN. We have a target date of completion of the now existing emergency program of 1958, sir.

Mr. RILEY. Mr. Davis?

Mr. DAVIS. Tell us what the difference in policy here is along stretches of the Arkansas. Are you going along on a hit or miss basis depending on what various spots look like in different construction years? As contrasted to the situation on the upper Missouri where, rather than doing that, a decision was made to let it go until such time as an orderly construction program could be commenced, which was done through appropriations in the current fiscal year?

Colonel ALLEN. There is one difference in the situation on the Arkansas and the Missouri in that on the Arkansas the levees are already constructed. On the upper Missouri the intention is to stabilize the river first before proceeding with the agricultural levee program.

On the Arkansas the levees are there, and if the river is allowed to continue without checking in the emergent areas, either the levees will have to be set back or they will be breached by subsequent erosion.

Mr. DAVIS. What is being done to program this thing for the future? When are we going to be in a position where we will not be patching up on an emergency basis here?

Colonel ALLEN. Our authority at the present time, Mr. Davis, is to proceed only on an emergency basis. We do not feel that we have been directed to proceed with complete channel stabilization of the Arkansas River because it is completely mixed with the complete Arkansas report and the Arkansas project.

We do have a monetary limitation of $31 million which is imposed upon the bank stabilization program.

We are carrying an estimate of the program now on the order of $25 million, of which some $16 million already has been appropriated.

Mr. DAVIS. Do we have a bad bank caving situation in the early spring and then it pretty well stabilizes for the rest of the year?

Colonel ALLEN. It depends on the flow of the river. In some areas of the river where the flow is constant there is annual caving, even in periods of normal flow.

Of course, that is accelerated as the river rises and the banks become saturated and the river falls.

Mr. DAVIS. Generally what success have you had in holding? Once you go into this emergency work, as you have been doing for the last several years, are you able to hold it pretty well then, or does that require constant patching and redoing?

Colonel ALLEN. The flows in the past several years have been such that minimum maintenance has been required. It really hasn't had a good test of an extreme high flow.

The work above Fort Smith, which is a complete stabilization of that reach between Wilson's Rock and Fort Smith, is proceeding very well. We expect to complete that entire reach in 1957.

You are familiar with that. That has been in the budget, that one reach, for a number of years.

There is certain work which cannot be completed until we get a higher flow than we have had in the last several years. That is particularly true in the areas where we are correcting alinement by means of a cutoff.

A pilot channel is cut through and the river trained to go into that pilot channel, but it takes high flows in order to completely take out the material which ultimately will be the new alinement of the river. There have been certain areas, at Holla Bend, for example, where we have been unable to proceed as we have planned because the river flows have been inadequate to completely divert it into the new alinement and seal off the old chute.

Mr. PHILLIPS. I was interested in this one statement on page 7, benefit-cost ratio not applicable to emergency construction.

I presume that means this rather minor construction you are talking about now. There must have been a cost-benefit ratio for the original project. Is that right?

Colonel ALLEN. That is correct, sir. This committee commented on that benefit-cost ratio several years ago, and the corps attempted to be responsive to the wishes of the committee and to determine a

benefit-cost ratio for these small reaches, but we found on reexamination of the problem that it had to be based on so many assumptions and so many intangibles that it would not have the meaning that the benefit-cost ratio normally does.

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM

Mr. RILEY. We will go to the next project, then, Red River levees, bank stabilization below Denison Dam, Tex.

Without objection we will insert in the record pages 20 and 21.

(The matter referred to follows:)

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM, TEX., ARK., AND LA. (Continuing)

Location.—Local protection along the main stem of Red River from the vicinity of Index, Tex. (mile 485), to Boyce, La. (mile 143), and passing through the southwest corner of Arkansas.

Authorization.—Flood Control Act of July 24, 1946.

Benefit-cost ratio.—1.35 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$9,530,000	
Estimated local cash contributions	0	
Estimated project cost	9,530,000	
Appropriations to June 30, 1954	4,705,000	
Appropriations for fiscal year 1955	450,000	
Appropriations to date	5,155,000	54
Appropriations requested for fiscal year 1956	450,000	59
Balance to complete after fiscal year 1956	3,925,000	

PHYSICAL DATA

Levees:

Average height: 10 feet.

Total length (both banks): 393 miles.

Bank protection: Total length (both banks), 17.6 miles.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Levees	83	December 1957.
Bank stabilization	37	June 1963.
Entire project	52	Do.

JUSTIFICATION

This project is an integral part of the authorized reservoir-levee plan for the alleviation of floods in the Red River Basin below Denison Dam, Tex. Between 1843 and 1900, the Red River has been subjected to 6 great floods. Since 1900, great floods downstream from Denison, in descending order of magnitude, occurred in 1945, 1908, and 1938. The floods resulted in crop damages, loss of livestock, and physical damage to levees, railroads, highways, industries, and other urban and rural developments. The flood of 1945 caused damages estimated at $16 million, including $6 million in crop losses. For the 20-year period 1927–46, 45 lives have been lost and property damage has amounted to $113,700,000. Protection is needed for urban industrial areas and the excellent farming areas

which have been subjected to recurring floods. Bank protection works will stabilize the banks and channel, and prevent or serve in lieu of expensive levee setbacks in highly developed areas; hence, deferment of the bank stabilization program will increase the overall cost of the project.

Due to the great transportation network in the Red River Basin, together with industrial plants (many of primary importance to the national economy), large food and fiber production areas, and such important installations as Lone Star and Red River Ordnance Works near Texarkana, and Barksdale Air Force Base and Louisiana Ordnance Works near Shreveport, it is considered that proper flood protection of the Red River Basin is well within both criteria of national defense and essential domestic commerce.

Fiscal year 1956.—The requested amount of $450,000 will be applied to:

Upstream extension, Lucas Bend revetment	$140,000
Curtis bank protection	250,000
Engineering and design	24,000
Supervision and administration	36,000
Total	450,000

The upstream extension at Lucas Bend will prevent further bank caving and flanking of the existing revetment. The bank protection at Curtis will serve in lieu of a levee setback, will prevent further caving, and will stabilize the river.

RIGHTS-OF-WAY

Mr. RILEY. The planning report on this indicates that there is some difficulty in obtaining rights-of-way for several of the sections. I believe 430 and 416–L are listed.

Colonel STARBIRD. Those levees are in the upper section of the river and are on the north and south banks. The levee districts are attempting to secure the necessary rights-of-way there.

However, this program recommended does not involve those particular works. The only funds recommended in the budget are funds for bank stabilization in the middle reach of the river. There is no problem of rights-of-way there.

Mr. RILEY. Local interests have to furnish the land?

Colonel STARBIRD. Yes, sir. They must furnish the lands, rights-of-way, public relocations; they must maintain and operate the project upon completion.

Mr. RILEY. Leaving these out, no work is contemplated on it, how does that affect the usefulness of the rest of the levee system?

Colonel SRARBIRD. It doesn't seriously affect the usefulness of the rest of the system, sir.

There are existing levees there, and they will be brought up to grade at a later date.

We have completed about 80 percent of the overall levee improvement. We have completed the more urgent sections where there are levees existent. The further improvement of those levees will await the accomplishment of stabilization work which we feel is more urgent.

Mr. RILEY. You do not think you are taking a calculated risk?

Colonel STARBIRD. There is some risk. If a very great flood comes along there will be flooding in the districts concerned, sir.

STATUS OF PROJECT

Mr. RILEY. If this $450,000 is granted, I understand that will bring the project up to 59 percent of completion?

Colonel STARBIRD. That is correct, sir.

Mr. RILEY. Mr. Magnuson?

Mr. MAGNUSON. On this project I notice the schedule calls for completion of the levees in December of 1957 and bank stabilization five and a half years later. Is that sound from a matter of engineering practice?

Colonel STARBIRD. Yes, sir. Our authorization here was one to improve existing levees basically. There were levees throughout most of the reach. Then there was authority to put in a certain amount of bank protection at places where there were existing or improved levees which could not feasibly or economically be set back.

Now, then, in determining the amount of stabilization we could do, we took the estimated cost of stabilization work at the time that the authorization was granted and increased that by a price level differential, and we feel that this authorization runs out when we accomplish that much.

Actually other emergency situations will develop later.

To answer one point on your question, sir, actually it would be in fiscal year 1958 that we would complete the levee, and certain of the revetment would follow thereafter.

Mr. MAGNUSON. Don't you endanger some of your levees by having the bank stabilization work trail so far behind?

Colonel STARBIRD. It would be preferable to revet earlier, sir. However, we are taking those situations where the river moves in extremely close to the levee and where the levee can't be set back, and we have taken care of the situation so far.

In these 2 particular pieces of work this year, in the lower 1 of the 2 shown on your map, the levee is within less than 100 yards of the river, and there is a railroad and highway just behind. We have to revet that. We cannot move the levee back.

A comparable situation exists in the reach just above.

TORONTO RESERVOIR, KANSAS

Mr. RILEY. Then we will go to Toronto Reservoir in Kansas. Without objection we will insert pages 25 through 27.

(The matter referred to follows:)

TORONTO RESERVOIR, KANSAS (Continuing)

Location.—On the Verdigris River, 271.5 miles above the mouth, about 4 miles south of Toronto, Kans.

Authorization.—1941 Flood Control Act.

Benefit/cost ratio.—1.22 to 1 (for the Six Reservoir system).

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$19,700,000	
Estimated local cash contributions	0	
Estimated project cost	19,700,000	
Appropriations to June 30, 1954	346,000	
Appropriations for fiscal year 1955	500,000	
Appropriations to date	846,000	4
Appropriation requested for fiscal year 1956	2,800,000	19
Balance to complete after fiscal year 1956	16,054,000	

PHYSICAL DATA

Dam:
Type: Earth-fill.
Height: 90 feet.
Length (including gated spillway), 4,583
Spillway:
Type: Gate controlled, ogee weir with stilling basin (8 25' by 40' tainter gates).
Capacity (maximum pool): 263,000 cubic feet per second (including sluices).

Reservoir capacity:	*Acre-feet*
Flood control	171,000
Conservation	24,000
Total	195,000

Relocations:
Missouri Pacific Railroad: 5.0 miles.
U. S. Highway 54: 1.6 miles.
State Highway 105: 0.7 mile.
County roads: 17.0 miles.
Utility lines: 45.4 miles.
Cemeteries: 500 graves.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Entire project	2	September 1959.
Acquisition of reservoir area	5	June 1958.
Relocations	0	July 1958.
Excavation for spillway and construction of first stage embankment including clearing of dam site.	1	December 1955.
Clearing reservoir area	0	June 1959.
Completion of embankment, construction of spillway and appurtenances.	0	Dam closure July 1, 1958. Completion of dam and spillway, September 1959
Operating buildings and management facilities	0	June 1959.
Recreation facilities	0	June 1959.

JUSTIFICATION

The Toronto Reservoir project is a unit in the system of six reservoirs in the Verdigris River Basin in Kansas and Oklahoma for flood control, supplemental water supply, pollution abatement, and other conservation uses. Construction of this project is the next logical step in the orderly completion of the authorized system. Operation of this project in conjunction with the completed Fall River Reservoir, located on a major upstream tributary of the Verdigris River, and the completed Hulah Reservoir, located on a major lower basin tributary, will provide urgently needed flood protection for fertile farmland and for communities in the Verdigris River and Arkansas River flood plains, containing 244,000 and 817,000 acres of land, respectively. Major areas in the Verdigris River flood plain have been abandoned or cropping practices changed to lower value crops due to high frequency and severity of flooding.

A total of 68 floods has occurred on the Verdigris River at Independence, Kans., during the 31-year period from January 1922 through January 1953. A total of 8 major floods has been experienced during the 10-year period preceding 1951. Damages from these 8 major floods are estimated to total $22,609,000 on the main stem below Toronto dam site. Operation of the 6-reservoir system of which Toronto is an integral unit would have prevented about 90 percent of these damages. The flood of June–July 1951 exceeded the prior maximum flood of record in the upper Verdigris River Valley and was a major flood in the lower portion of the valley. It is estimated that flood damages, considering the completed Fall River and Hulah Reservoirs not in operation, would have totaled $9,026,000 in flood plain areas below the 6 authorized reservoirs. Operation studies show that the authorized Toronto Reservoir and the completed Fall River and Hulah Reservoirs would have prevented $3,510,000 of these damages. The principal losses in the valley were sustained by agricultural improvements and crops, urban development in Neodesha, Independence, and Coffeyville, Kans., the petroleum industry, and by major railway and highway crossings in the valley. Interruptions to the normal movement of traffic on railroads and highways, as a result of floods, cause large indirect losses to business and industries.

During prolonged drought periods, water shortages are critical, particularly because sewage effluent and industrial wastes discharged into the river make water treatment difficult. The authorized reservoirs, including Toronto, have specific allocations of storage to augment low stream flows to provide minimum

flows recommended by United States Public Health Service. Operation of Toronto Reservoir in conjunction with Fall River and Hulah Reservoirs would provide the major portion of pollution abatement and water supply benefits attributable to the six-reservoir system.

Fiscal year 1956.—The requested amount of $2,800,000 will be applied to:

Continue acquisition of lands in the reservoir area	$760,000
Initiate relocations	940,000
Continue construction on the dam and spillway	742,300
Construct administration and maintenance building	110,500
Install communications facilities	17,100
Engineering and design	78,000
Supervision and administration	152,100
Total	2,800,000

The amount of funds requested for fiscal year 1956 is considered the very minimum required to continue construction in an orderly and economical rate of progress. Acquisition of lands, as scheduled, will be necessary to permit continuation of planned construction without costly delay.

Mr. RILEY. In the planning report it is indicated that this project will have to be operated in conjunction with the Fall River and Hulah Reservoir.

What is the situation with regard to these other two reservoirs, and to what extent can Toronto be operated effectively if it were operated separately?

Colonel STARBIRD. Sir, to give the desirable degree of flood protection on the Verdigris there are six authorized reservoirs. Two of those six, those you mentioned, have been completed.

They can be operated independently and do independently give benefits.

Each one of the additional four, as they come into being, will give an added degree of benefit, and in certain cases benefit on reaches not covered by reservoirs already complete.

The reservoir can be operated without completion of the remaining three with benefit.

Mr. RILEY. Do you have any relocations to take care of in connection with this project?

Colonel STARBIRD. Yes, sir; we have several relocations, and the funds requested for fiscal year 1956 will initiate certain of the more critical of these.

We will initiate, to glance at your map, sir, relocation of the Missouri Pacific Railroad.

We will initiate Highway No. 54 relocation just north of the railroad.

We will initiate late in the year the county roads concerned, with a small expenditure thereon during the year, and we shall initiate and partially complete eight small relocations contracts for utilities, sir.

Mr. RILEY. Apparently there is considerable work in the relocation. I note here that you have, in addition to the project you mentioned, a large cemetery, or several cemeteries, and some utility lines.

Colonel STARBIRD. There are several relocations involved, sir. The estimated cost of the relocations is $5,945,400 of the overall cost of $19,700,000.

Such expenditures do happen in connection with major reservoirs, sir.

Mr. RILEY. Is this benefit-cost ratio of 1.22 to 1 based on new criteria?

Colonel STARBIRD. The new criteria does not apply to these reservoirs, sir, because they are flood-control reservoirs. They do not involve power.

Mr. RILEY. No power involved?

Colonel STARBIRD. No power involved, sir.

Mr. RILEY. Mr. Davis?

Mr. DAVIS. It is indicated that this is part of a system of six reservoirs?

Colonel STARBIRD. Yes, sir.

Mr. DAVIS. What are the other five and what is the status of each?

Colonel STARBIRD. There is Toronto, of course. That is the reservoir you are now considering.

There is Fall River complete on a tributary about the same distance north as Toronto.

There is Hulah Reservoir, also on a western tributary, and complete at the present moment.

There is Elk City Reservoir not yet complete.

There is Neodosha.

Mr. DAVIS. What is the status of Elk City?

Colonel STARBIRD. I don't know whether we have accomplished any planning or not, sir. If you would like to proceed with the other questions I can answer that in a few moments.

Mr. DAVIS. All right.

Colonel STARBIRD. And the last is Oologah Reservoir, sir.

Mr. DAVIS. Oologah is the one on which planning funds have been requested but we have not spent any money for planning. Is that right?

Colonel STARBIRD. I will check that, too.

We have spent $90,000 for planning on Elk City, sir.

Mr. DAVIS. Does this project have more than the usual local opposition, or what is the situation on it?

Colonel STARBIRD. I know of no more than usual opposition in this reservoir, sir.

On the Oologah Reservoir, sir, we have had funds in the amount of $392,000.

General ITSCHNER. In the past year due to the drought there has been quite an increase in the support of this project when they saw an other reservoir at Fall River become very valuable for water supply.

Mr. DAVIS. Generally and roughly speaking, what is the size of the pool that will be created by this reservoir?

Colonel STARBIRD. The total pool in this reservoir is 195,000 acre-feet, that is the flood-control pool, sir.

Of that 24,000 will be the conservation pool.

As General Itschner has brought out, we have had reports that there was considerable landowner opposition in this initially, but the advantages of low flow regulation during the drought has partially caused a reversal of that opinion.

Mr. DAVIS. Toronto appears to be right on the reservoir edge. Is that up on a bluff so you will not have a problem of local protection there?

Colonel STARBIRD. There is no protective work scheduled for Toronto, sir.

WICHITA AND VALLEY CENTER, KANS.

Mr. MAGNUSON. We now come to flood-control improvements, Wichita and Valley Center, Kans. We will insert pages 32 through 34 in the record at this point.

(The matter referred to follows.)

WICHITA AND VALLEY CENTER, KANS. (Continuing)

Location.—Local protection for Wichita, Kans., including urban and rural areas, located in Sedgwick County, Kans., along the Arkansas River and its tributaries in that immediate vicinity.

Authorization.—1936 Flood Control Act.

Benefit/cost ratio.—1.27 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$13,300,000	
Estimated local cash contributions	0	
Estimated project cost	13,300,000	
Appropriations to June 30, 1954	5,753,000	
Appropriations for fiscal year 1955	1,800,000	
Appropriations to date	7,553,000	57
Appropriations requested for fiscal year 1956	2,200,000	73
Balance to complete after fiscal year 1956	3,547,000	

Levees:
Average height: 7.5 feet.
Length: 91.23 miles.
Crown width: 8 feet or more.

Floodwalls:
Average height: 25 feet.
Length: 400 feet.

Relocations:
Alteration and Reconstruction of railroad bridges and approaches crossing the floodway:
Midland Valley Railroad: 1.53 miles.
C. R. I. & P. Railroad: 1.63 miles.
Missouri Pacific Railroad: 3.71 miles.
A. T. & S. F. Railroad: 6.63 miles.
S. L.-S. F. Railroad: 2.11 miles.

PHYSICAL DATA

Channels: Diversion canals and floodways.
Length: 31.53 miles.
Width: 900 feet to 2,600 feet.

Control structures: Five structures.

	Percent	Completion schedule
Railroad relocations:		
Midland Valley	100	
Chicago, Rock Island & Pacific	100	
Missouri Pacific	18	May 1956.
Atchison, Topeka & Santa Fe:		
Big Slough-Cowskin crossing	42	January 1956.
Little Arkansas River crossing	0	June 1956.
Chisholm Creek crossing	0	Do.
St. Louis-San Francisco:		
Little Arkansas River crossing	0	August 1956.
Chisholm Creek crossing	0	Do.
Channels and canals:		
Wichita Canal	100	
Arkansas River training levee, phase I	100	
Big Slough-Cowskin Floodway	92	October 1956.
Chisholm Creek diversion canal	0	June 1958.
Little Arkansas River Floodway	0	Do.
Levees and floodwalls:		
Arkansas River training levee, phase II	100	May 1955.
Riverside levee	0	June 1955.
Big Slough-Cowskin Floodway	70	October 1957.
Chisholm Creek diversion canal	0	June 1958.
Little Arkansas River Floodway	0	September 1957.
Floodway control and diversion structures:		
Big Slough-Cowskin Floodway	100	
Chisholm Creek diversion canal	0	March 1958.
Little Arkansas River Floodway	0	February 1958.
Entire project	44	June 1958.

JUSTIFICATION

The project will protect about 47,000 acres of highly developed urban and rural land on Chisholm Creek, Little Arkansas River, Arkansas River, Big Slough and Cowskin Creek. In addition, a large part of the industrial, commercial, residential and transportation properties in the city of Wichita will be protected by the project. Included in these are numerous small machine shops which do subcontract work for Boeing, Beach and Cessna Aircraft companies. Average annual flood damages prevented by the project are estimated at about $400,000. This annual damage is the average of losses ranging from a few thousand dollars up to $5,000,000. Major flood losses in 1944, 1945, and 1951 amply illustrates the need for protection, which cannot be given by the project in its present incomplete form. Completion of the project at an early date is needed to prevent recurring flood losses. Local interests have expended approximately $4,000,00 for lands, easements and rights of way, and for relocations and alterations of roads, streets, highways, and utilities. Land acquisition is essentially complete and relocations by local interests are approximately 50 percent complete. It is expected that local interest will continue their share of required cooperation in advance of scheduled construction requirements.

Fiscal year 1956.—The requested amount of $2,200,000 will be applied to:

Continue alterations and relocatoins of railroads	$1,873,000
Continue construction of channels and canals	78,200
Continue construction of levees and floodwalls	82,800
Engineering and design	70,900
Supervision and administration	95,100
Total	2,200,000

The major portion of the work scheduled for fiscal year 1956 is relocation, which must be completed before final construction can be initiated and completed.

Mr. DAVIS. The estimated cost of this project has been reduced. Does that mean any change in the physical scope of the project?

Colonel STARBIRD. There is no change in the physical scope of the project, sir. The reduction since last year was about $839,000. About $400,000 was on work already under way, and the remainder is based on a modification of the unit price for the remainder of work.

Mr. DAVIS. Last year, one of the things we discussed because it represents a large portion of the overall cost, was the railroad re-

location. I believe you told us last year you expected to get that pretty well under way during the course of this year. What progress have you made on that?

Colonel STARBIRD. We have under way or complete all of the contracts for the main crossings over the Big Slough and Cowskin Creek Floodway. In fact, funds requested for 1956 complete those crossings and amount to only $440,000. The work remaining in the way of railroad relocation is that shown in the upper left-hand corner of your map, in red.

There are crossings of two railroads, the Atchison, Topeka & Santa Fe, and the St. Louis-San Francisco over the Little Arkansas, and over Middle Branch and Chisholm Creek. Negotiations are pretty well along for those projects, which are to be awarded in the fall of this present calendar year or early in the next fiscal year. They were not discussed at the time of the last hearings.

Mr. DAVIS. Your land acquisition program is or will be pretty well cleaned up in the course of the fiscal year?

Colonel STARBIRD. That is correct, sir. They are proceeding with the acquisition of the lands now for the last channel portions.

Mr. RILEY. Colonel, apparently you have some favorable contracts on this project. As I read the justifications, it seems to have been reduced from last year by some $839,000.

Colonel STARBIRD. That is correct. Because of the progress recently with contracts, we have reduced the overall cost estimate by that amount.

Mr. RILEY. Does that result from favorable contracts or from better engineering, or to just what do you attribute that reduction?

Colonel STARBIRD. We think it is attributable to both, sir.

Mr. RILEY. You have an unexpended balance on the 30th of June of a considerable amount.

Colonel STARBIRD. That is correct, sir.

Mr. RILEY. Is that all obligated?

Colonel STARBIRD. That will all be obligated, sir—all except $86,000 which is loaned.

Mr. RILEY. When do you expect to get that back?

Colonel STARBIRD. The $86,000 is to be repaid in fiscal 1956. In other words, it is considered as available funds in connection with the request for funds we have made this year.

Mr. RILEY. You have considered that in relation to the $2,200,000 you are asking?

Colonel STARBIRD. We have, sir. And we have also considered the reduced cost estimate in requesting the $2,200,000.

CARTHAGE, MO.

Mr. RILEY. The next project is Carthage, Mo., a local protection project. Without objection, we will insert pages 38 and 39 of the justifications in the record.

(The matter referred to follows:)

CARTHAGE, MO. (NEW)

Location.—Local protection for Carthage, Mo., located in Jasper County, Mo., along Spring River, 68 miles above its confluence with the Grand (Neosho) River.
Authorization.—1948 Flood Control Act.
Benefit-cost ratio.—1.64 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$383,000	
Estimated local cash contributions	0	
Estimated project cost	383,000	
Appropriations to June 30, 1954	16,000	
Appropriations for fiscal year 1955	0	
Appropriations to date	16,000	4
Appropriations requested for fiscal year 1956	367,000	100
Balance to complete after fiscal year 1956	0	

Levees:
Average height: 16 feet.
Length: 1.1 miles.
Relocations: St. Louis & San Francisco Railroad, 1,600 feet.

PHYSICAL DATA

Pumping plants: 1.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Relocations	0	May 1956.
Levees	0	June 1956.
Pumping plant	0	May 1956.
Entire project	0	June 1956.

JUSTIFICATION

The Carthage, Mo., project will provide protection to about 90 acres of urban property on the south bank of Spring River in Carthage, Mo., including residential, commercial, and industrial properties, transportation, communication, and public utilities, and have a value of about $6,467.000. Three major floods have occurred since 1925, the largest being in 1943. Recurrence of the 1943 flood under present conditions would cause damages estimated at $250,000. Annual flood-control benefits for the project are estimated at $28,000. Completion of the project at an early date is needed to prevent recurring flood losses and for essential local economy. Local interests have organized a body that is legally qualified to give assurance of local cooperation and have agreed to furnish lands, easements, and rights-of-way when needed for construction of the project.

Fiscal year 1956.—The requested amount of $367,000 will be applied to:

Initiation and completion of the St. Louis & San Francisco Railway relocation	$61,500
Initiation and completion of levee	247,000
Initiation and completion of pumping plant	22,300
Engineering and design	4,900
Supervision and administration	31,300
Total	367,000

Because of the nominal amount of construction involved, it would be uneconomical for the construction period to extend for more than 1 year.

Mr. RILEY. Is this a new start?

Colonel STARBIRD. This is a new start. It is a new start for which the funds recommended in fiscal year 1956 will both initiate and complete the project.

Mr. RILEY. It is purely a flood-control project?

Colonel STARBIRD. It is a local protection levee project, sir.

Mr. RILEY. What about local participation?

Colonel STARBIRD. We have assurances of local participation and, in fact, the local people have indicated they are going ahead now with the procurement of certain lands. We believe there will be no problem with respect to lands and relocations.

Mr. RILEY. What is the nature of the area to be protected?

Colonel STARBIRD. The area protected is the railroad and part of the industrial area of the 11,200-person city of Carthage. There are about 30 agricultural acres involved, about 20 residential and 40 commercial acres involved. The estimated value of the property within the protected area shown generally in green on your map is $6,500,000. There about 80 residents in the area, but some 170 additional individuals come to their place of work within this flood plain.

Mr. RILEY. How frequently do they have floods out there?

Colonel STARBIRD. The flooding has been on an average of about once every 4½ years in our short period of records. Floods occurred in 1927, 1928, 1941, 1943, 1947, and 1950. The maximum of record was that of 1943. The flood stage there is about 12.8 feet, and the flooding actually went to 20.8 feet.

Mr. DAVIS. What is this—a flood wall, or levee?

Colonel STARBIRD. It is a levee with one small pump.

General ITSCHNER. There also is a railroad relocation.

Colonel STARBIRD. Yes, there also is a railroad relocation which consists of raising the railroad where it passes through the flood wall to permit continued activity of the railroad within the city for a longer period of time. Otherwise we would have to put in the stop logs earlier.

Mr. PHILLIPS. Is that in the northwestern section?

Colonel STARBIRD. No, sir; the part involving the rise is part of the southern section where the railroad enters.

Mr. PHILLIPS. That does not show, evidently, on the city map.

Colonel STARBIRD. I misunderstood your question, I believe. The railroad passes through the northwestern section of the city, but the relocation involved is in the southern section of the project.

Mr. DAVIS. The question which this raises in my mind is the basis on which a particular project of this kind is picked out for prosecution. Apparently there have been a number of industrial concerns and so forth, that have constructed their facilities in this flood plain. They saw it when they moved in; they did so at their peril, and now we are supposed to come in, purely as a Federal responsibility and remove that peril.

Mr. PHILLIPS. At $1,000 per person?

Mr. DAVIS. There is not any protection of lives here, actually; there is a very small number of people in this area. I believe you told us about 70?

Colonel STARBIRD. There are about 80 in the area. However, it does involve a large portion of the critical transportation and industrial area of the city.

Mr. DAVIS. Well, suppose I am looking around for an industrial site. I can buy one on high ground but it is going to cost me a lot of money, or I can build one on the low ground which I can buy cheap and build a wall around it myself. That is a fair choice that I have. If I do it with my eyes open, do I have any right, if I build on the lowland at a cheaper price because it is floodable, to ask Uncle Sam to protect me after I have gone in there? That is about what a project of this kind boils down to, is it not?

Colonel STARBIRD. In this case we are protecting an area which people moved into. The railroad went through the area concerned. Whether the railroad could have relocated elsewhere without excessive difficulty, I do not know, sir. It is undoubtedly true, though, that the industry came in because of the communications that were available. Incidentally, there is also a United States highway that crosses here.

Mr. DAVIS. I guess the engineers who laid out the highway knew what they were getting into, did they not? At least they ought to.

Colonel STARBIRD. I presume they did, sir.

EAST POPLAR BLUFF AND POPLAR BLUFF, MO.

Mr. RILEY. We will move on to East Poplar Bluff and Poplar Bluff, Mo. This is a local protection project for flood control and apparently it is a new project also, is it not, Colonel?

Colonel STARBIRD. This is a new project that would also be initiated and completed in 1 year.

Mr. RILEY. Without objection, we will insert pages 43, 44, and 45 in the record.

(The matter referred to follows:)

EAST POPLAR BLUFF AND POPLAR BLUFF, MO. (NEW)

Location.—Local protection for that part of Poplar Bluff, Mo., lying east of Black River in Butler County, Mo., 210 miles above the confluence of Black River and White River.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—1.08 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$354,000	
Estimated local cash contributions	0	
Estimated project cost	354,000	
Appropriations to June 30, 1954	40,000	
Appropriations for fiscal year 1955	0	
Appropriations to date	40,000	11
Appropriations requested for fiscal year 1956	314,000	100
Balance to complete after fiscal year 1956	0	

PHYSICAL DATA

Levees:

Average height new section: 9.0 feet.

Average height modified section: 5.1 feet.

Length: 4.55 miles.

Pumping plants: One pumping plant with installed pumping capacity of 300 gallons per minute and provision for addition of one 150 gallons per minute pump to discharge sanitary sewage over levee at times of high water on Black River.

Alteration of existing sewer system to connect with pumping plant will be made by local interests at their expense.

Status (Jan. 1, 1955)

	Percent	Completion
New start		
Rights-of-way (furnished by local interests)	100	September 1950.
Levees	0	March 1956.
Pumping plants	0	Do.
Entire project	11	Do.

JUSTIFICATION

The project will protect 410 acres of business, industrial, and residential areas in Poplar Bluff, Mo., lying east of Black River, and 310 acres of adjacent agricultural lands, from recurring floods of Black River. These areas include sections of two main-line railroads and United States Highway 60, a transcontinental route. No estimate is available of the damages suffered in the area to be protected from the larger floods of history under conditions then existing. However, it is estimated that recurrence of the floods of 1927 and 1937 with Clearwater Reservoir, which is now complete, in operation, and under present conditions of development in the affected area, would cause damages amounting to $73,000. Annual flood-control benefits for the project are estimated at $19,200. Butler County Drainage District No. 12 has furnished the assurances of local cooperation required by the authorizing act and has furnished all rights-of-way required for the construction at an expenditure for rights-of-way, damages, and relocations of $28,800, exclusive of costs of organization and financing.

***Fiscal year 1956.*—The requested amount of $314,000 will be applied to:**

Construction of levee	$246,000
Construction of pumping plant	34,800
Engineering and design	7,900
Supervision and administration	25,300
Total	314,000

Construction of the project at an early date is needed to prevent recurring flood losses and to relieve existing adverse local economic conditions which have resulted from the following circumstances. Funds were allocated for construction under the Appropriation Acts for fiscal years 1949 and 1950. In June 1950, the district engineer informed local interests that funds were available for completion of the project. Relying on this assurance, local interests immediately issued bonds to finance acquisition of rights-of-way and reconstruction of their sewer system to conform with the plan of improvement. The rights-of-way were acquired and some funds were spent for design for alteration of the sewer system. Subsequently, all Federal funds available to the project were revoked in accordance with the reapportionment procedure specified by the 1951 Appropriation Act. Upon revocation of the Federal funds, local interests were confronted with a bonded indebtedness to be retired by taxes. In order to avoid default on the bonds, taxes must be levied and collected on lands for which benefits have been indefinitely postponed. All rights-of-way required for the construction were furnished in 1950. Plans and specifications for award of a contract are complete. The project will be completed with the amount requested.

Mr. RILEY. What is the history of this project and the status of the local participation?

Colonel STARBIRD. This project was authorized by the Flood Control Act of 1936.

Mr. PHILLIPS. There was one in 1940, too; was there not?

Colonel STARBIRD. Yes, sir; there was. There has been an average of 1 about every 2 to 4 years.

The project actually received an appropriation to initiate construction; local interests sold bonds and raised cash in addition to the bonds

in an amount of about $49,000. Their bonds, incidentally, were payable with 6 percent interest. And they bought the lands at a cost of about $22,000 for the project—substantially all of the lands concerned. Then the Korean war came along and the project was stopped.

We consider this a hardship case in the sense that the local people have bought the lands, funds were once appropriated to initiate the project, and they are paying interest on their bonds at the present time. They have stated they might have to sell their lands to pay off their indebtedness unless the project proceeds in the near future.

Mr. RILEY. Do I understand that they went ahead and initiated this bond issue and sold the bonds on the premise that the Government was going to undertake this work, and it constitutes somewhat of an obligation?

Colonel STARBIRD. That is correct, sir.

Mr. RILEY. And they have suffered as a result of this delay which, of course, could not be prevented either by the Corps of Engineers or by them.

Colonel STARBIRD. That is correct.

Mr. RILEY. Apparently this has a very low cost-benefit ratio. How many people are involved in this protection, or how many acres?

Colonel STARBIRD. There are about 720 acres all together, around 2,200 residents in the area and about 1,100 additional come in and have their place of employment in the area.

Mr. RILEY. It has a fairly good population.

Mr. DAVIS. I can sympathize with the feeling about going ahead with this at this time, but there is nothing particularly impressive about the project with a benefit-cost ratio as close to unity as this one is—1.08.

What part does the benefit-cost ratio play in your selection of new flood-control projects to go ahead with or initiate in any given year?

Colonel STARBIRD. It plays an important part, sir. We do not normally select projects that have a marginal benefit-to-cost ratio. This has the lowest benefit-to-cost ratio of the recommended flood-control projects. It is a hardship case, as I explained, sir.

Mr. PHILLIPS. Is this a new project?

Colonel STARBIRD. This is a new project that would be completed in 1 year.

Mr. PHILLIPS. Is it a levee?

Colonel STARBIRD. It is a low levee, sir.

Mr. PHILLIPS. You show here an estimated Federal cost of $354,000 and an estimated project cost of $354,000; local cash contribution, none, but you testified that they raised how much in bonds?

Colonel STARBIRD. We do not show on this sheet the expenditures made by local interests.

Mr. PHILLIPS. How much did they raise by the bond issue?

Colonel STARBIRD. They raised $41,000 by bonds and another $8,000 in cash.

Mr. PHILLIPS. The question occurred to me that the cost of the project, then, was $403,000, of which the Federal Government will pay $354,000.

Colonel STARBIRD. The summary form, I believe, was worked out with the staff, and there is more detail in the planning report. The planning report carries the additional figures.

Mr. PHILLIPS. That is all right; but I subscribe to the theory, that when I look at something, I want to know what the figures mean and this is what I call a fallacious figure. The estimated project cost is not $354,000; it is $403,000.

Colonel STARBIRD. You are absolutely right, sir; $354,000 is not the total project cost. In fact, the estimated cost to the local interests overall is about $90,000, plus the continuing cost for maintenance and operation of $1,320 annually.

Mr. PHILLIPS. Do not you think it would be more fair to the Congress if we knew what these projects were actually costing and not just how much we were sinking in them?

Colonel STARBIRD. The form certainly could be changed, Mr. Phillips. I can assure you there was no intent to withhold information. In fact, it was in the planning report.

Mr. PHILLIPS. I know that.

Colonel STARBIRD. Mr. Tofani tells me that matter has already come up and we are going to change that.

General ITSCHNER. We plan to change the form. We think it would be clearer if Congress had the total cost of the project including the cost of local cooperation.

OKLAHOMA CITY FLOODWAY, OKLA.

Mr. RILEY. The next project is the Oklahoma City Floodway.

Without objection we will insert pages 49 through 51 into the record.

(The matter referred to follows:)

OKLAHOMA CITY FLOODWAY, OKLA. (CONTINUING)

Location.—On North Canadian River, extending through Oklahoma City, Okla., from river mile 273.7 to about mile 257.5, and consists of an enlarged and straightened channel 13.8 miles in length.

Authorization.—1936 and 1946 Flood Control Act.

Benefit-cost ratio.—1.15 to 1 for the 4 project system of the Oklahoma City Floodway, completed Canton and Fort Supply Reservoirs, and the authorized Optima Reservoir.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$10, 500, 000	
Estimated local cash contribution	0	
Estimated project cost	10, 500, 000	
Appropriations to June 30, 1954	2, 680, 000	
Appropriations for fiscal year 1955	1, 650, 000	
Appropriations to date	4, 330, 000	41
Appropriations requested for fiscal year 1956	2, 260, 000	63
Balance to complete after fiscal year 1956	3, 910, 000	

Physical data

Relocations:

Alteration and reconstruction of railroad bridges and approaches crossing the floodway:

C. R. I. & P. Railroad: 1.4 miles.

S. L. S. F. Railway: 0.85 mile.

O. C. A. & A. Railroad and M. K. & T. Railroad: 1.1 miles.

A. T. & S. F. Railroad: 42-foot bridge extension.

Channels:

Length: 13.8 miles.

Average depth: 13 feet.

Average bottom width: 425 feet.

Laterals: Aggregate length for 15 laterals: 6.4 miles.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Railroad relocations:		
Chicago, Rock Island and Pacific	0	April 1957.
Saint Louis-San Francisco	0	September 1956.
Oklahoma City, Ada & Atoka-M. K. & T	15	April 1957.
Atchison, Topeka and Santa Fe	0	June 1956.
Channels:		
Phase I	100	June 1955.
Phase II	37	June 1956.
Phase III	0	June 1958.
Phase IV	0	
Entire project	25	June 1958.

JUSTIFICATION

The project will protect about 7,700 acres of highly developed land within the urban area of Oklahoma City, Okla., against recurring floods on the North Canadian River. Considering present-day development of this area, recurrence of a flood equal in magnitude to the flood of October 1923 would cause damages estimated to be well over $5 million. The Oklahoma City Floodway is a part of a four-project system. Other projects in this system consist of the completed Canton and Fort Supply Reservoirs and the authorized Optima Reservoir. Annual flood control benefits for the system are estimated at $3,121,000. Completion of the project at an early date is needed to prevent recurring flood losses. The city of Oklahoma City has expended approximately $2,650,000 for lands and required monifications to streets, highways, and utilities and are ahead of scheduled construction requirements. Acquisition of lands and rights-of-way is 90 percent complete and local interests propose to continue their share of required cooperation in advance of scheduled construction requirements.

Fiscal year 1956.—The requested amount of $2,260,000 will be applied to:

Continue alteration and construction of railroad bridges crossing the floodway, including approaches	$1,313,400
Continue construction of floodway channel, phase III	709,000
Engineering and design	78,000
Supervision and administration	159,600
Total	2,260,000

The major portion of the work scheduled for fiscal year 1956 is covered by continuing contractual documents. The sum of $1,379,400 will be applied to payment of contractual earnings under contracts continuing after fiscal year 1955, $643,000 will be applied to new contracts scheduled for award during fiscal year 1956, and the remainder, $237,600, will be applied to engineering, supervision and administration of the work.

Mr. RILEY. This project, I take it, has been under construction for some time, Colonel, is that right?

Colonel STARBIRD. That is correct, sir. It was initiated in 1952.

Mr. RILEY. What percentage of it is completed?

Colonel STARBIRD. The appropriations to date, sir, have covered 41 percent of the total net cost. The new cost is a reduction of $662,000 from last year.

The amount requested for this fiscal year is $2,260,000, which will bring the project up to 63 percent of completion.

Mr. RILEY. The estimate on this has been reduced somewhat from last year, is that correct?

Colonel STARBIRD. Yes, sir, that is correct. It has been reduced by $662,000.

RELOCATION NEGOTIATIONS

The primary reduction has come in the finalization of certain railroad negotiations.

Mr. RILEY. Off the record.

(Discussion off the record.)

Mr. RILEY. On the record I will say that it is very gratifying that the Engineers, by negotiation, have been able to save this money on this project.

Off the record.

(Discussion off the record.)

Mr. RILEY. I have a letter here from the Corps of Engineers which is dated April 7, 1955, in regard to this project, giving a brief history of negotiations in regard to this matter, and without objection we will incorporate it in the record.

(The matter referred to follows:)

APRIL 7, 1955.

The CHAIRMAN,
Committee on Appropriations,
House of Representatives, Washington 25, D. C.

DEAR MR. CHAIRMAN: Reference is made to page 8 of House Report No. 1345, civil functions, Department of the Army, appropriation bill, fiscal year 1955, wherein the following statement is made on relocation costs for the Oklahoma City floodway.

"The committee directs that no construction funds be obligated on these relocations until such time as a full study and review have been made of the situation, including completion of negotiations, and the results thereof submitted to this committee for review."

There is furnished herewith the required report covering the negotiations with the St. Louis-San Francisco Railway Co.

The contract with this railroad has been approved by the authorized representative of the Chief of Engineers under existing authority but no obligation of funds has been or will be incurred pending your review of these negotiations in accordance with committee direction. Current progress on this portion of the Oklahoma City floodway project is being held in abeyance pending your approval.

One additional minor relocation contract remains to be negotiated with the Atchison, Topeka & Santa Fe Railroad to permit completion of the railroad relocation portion of the project. These final negotiations will be undertaken during the latter part of fiscal year 1956 and report thereon will be furnished your committee upon completion.

Sincerely yours,

E. C. ITSCHNER,
Brigadier General, United States Army,
Assistant Chief of Engineers for Civil Works.

BRIEF ON NEGOTIATIONS FOR RELOCATION OF THE ST. LOUIS-SAN FRANCISCO RAILWAY COMPANY'S FACILITIES AFFECTED BY THE OKLAHOMA CITY FLOODWAY PROJECT AT OKLAHOMA CITY, OKLA.—CONTRACT NO. DA-34-066-ENG 4160

1. *Authorization.*—This contract is authorized by the Flood Control Act approved June 24, 1946 (Public Law 526, 79th Cong.), as amended by Flood Control Act approved May 17, 1950 (Public Law 516, 81st Cong.).

2. *Existing facilities.*—The facilities of the St. Louis-San Francisco Railway Co. affected by the floodway project are all maintained in first-class condition and are at three points as follows:

(*a*) The first two are on the Oklahoma subdivision and include a bridge 664± feet long over the North Canadian River and the replacement of a pile trestle over drainage canal (lateral No. 22) with five 72 inches by 104 feet corrugated metal pipes, both at entrance to Oklahoma City.

(*b*) Bridge 581± feet on the Chickasha subdivision over the North Canadian River floodway and culverts in lateral No. 6, at entrance to Oklahoma City. This structure has capacity of Cooper's E–60 loading, 90-pound rail and carries passenger trains and medium heavy freight.

3. *Relocation.*—The definite project report dated March 1949 contemplated that alteration of the facilities would be accomplished by offset alinement that would avoid necessity for temporary bridges and tracks at the two river crossings, under conditions which then appeared rather favorable as to clearances and foundation materials. The estimated Federal cost for these relocations as of June 30, 1952, was $800,000. Further studies and negotiation with the railway company developed the facts that offset alinement would be impractical at the Chickasha subdivision crossing, that limited clearance under Byers Avenue Bridge required redesign of the main line bridge to a more costly type, and in that foundation conditions were not as favorable as originally anticipated. These adverse factors and other requirements of approach grades and curvatures increased the cost of the work by $286,200, which, with a price level increase of $68,000, made a total estimated cost of $1,154,200, as of June 30, 1953.

Continued studies and negotiations with the railway company since June 30, 1953 resulted in decision to use pile bents in lieu of concrete piers and modification in placement of shoo-flys. These changes decreased the cost by $169,000, which with a price level increase of $51,300 made a total estimated cost of $1,035,700 as of June 30, 1954. Under the subject contract some 1,737 feet of track on the Oklahoma subdivision involving 1 main line bridge will be relocated on offset alinement, and some 2,054 feet of track involving the bridge and 3 major drainage culverts on the Chickasha subdivision will be constructed at the present alinement. The contract provides for standards of design and construction adhering to the principle of "replacement in kind," and for the application of new or used materials as they may be available, of suitable quality and of least cost. Final negotiations have resulted in a further reduction of cost. The railway company will furnish all materials and accomplish all the work without profit at a cost of $817,400. This amount plus $122,600 for design, supervision, and administration makes a total estimated cost of $940,000 based on price levels of midwinter 1955.

4. *Negotiations.*—Negotiations began in April 1953, and were carried to a successful conclusion in February 1955. Other possible ways of accomplishing the relocations were explored and agreement reached on the method embodied in the contract.

5. *Conclusion.*—The consummated agreement involves the minimum expense consistent with reasonable replacement of the existing facilities in a manner satisfactory to all concerned and susceptible to an orderly prosecution of the work fitting with congressional appropriations for the project.

Mr. RILEY. Mr. Davis, do you have any questions?

Mr. DAVIS. Off the record.

(Discussion off the record.)

Mr. DAVIS. When we are speaking of the estimated cost of this project as $10,500,000, that is purely for the floodway itself?

Colonel STARBIRD. Yes, sir, that is for the floodway, together with the railroad relocation, sir.

Mr. DAVIS. Your justification indicates two completed reservoirs as part of this overall system of water control in the area, and then it mentions one further reservoir, the Optima Reservoir which, apparently has been authorized but on which no construction has commenced. How far from Oklahoma City will that reservoir be located?

Colonel STARBIRD. The Optima Reservoir is, I would estimate, about 350 miles, that is, river miles, upstream.

Mr. DAVIS. Last year I believe in connection with this we discussed the fact that it was divided into, I believe, three phases. Now, I notice you list four phases here in connection with it. Is there any significance attached to that at all?

Colonel STARBIRD. No, sir, the phases are just for ease in the awarding of a contract and undertaking the work under construction, sir. There is no significance in the change.

Mr. DAVIS. Generally, do you refer to specific geographic areas within the overall project when you refer to the phases?

Colonel STARBIRD. No, sir, it is the length of channel which can be undertaken as a single unit, sir.

Mr. DAVIS. I gather from the material which has been submitted by the corps to the committee since the rather discouraging situation, at least from the point of view of the committee last year, that there has been some substantial improvement since that time, is that correct, Colonel?

Colonel STARBIRD. I imagine you are referring to the railroad relocation situation, sir. We have completed negotiations with the railroads concerned, and there is a reduction in the estimated cost since last year.

LOCAL CONTRIBUTIONS

Mr. RILEY. I note here from your planning report that Oklahoma City and the county of Oklahoma have provided some $4,791,000, and that plans have been made to float a bond issue to furnish some additional funds. Just how much are the local interests supposed to put into this project?

Colonel STARBIRD. They must furnish all lands and relocations other than railroad relocations and rights-of-way, and maintain and operate the channel upon completion, and in addition to that protect the Federal Government against damages during construction.

The estimated cost to them of all of the work that they will do initially is about $7 million, sir.

In addition to that they have to pay approximately $45,000 a year for maintenance and operation.

Mr. RILEY. The Federal Government is putting in $10,500,000, and the local people are putting in over $7 million?

Colonel STARBIRD. Yes, sir, $7,020,000 was the latest estimate, exclusive of their annual payments for maintenance and operation.

Mr. RILEY. What is the status of this bond issue? Is there any question about that going through, or has it gone through?

Colonel STARBIRD. As far as I know it has not gone through. We have had no difficulty with lands and rights-of-way relocations. I understand that the election on the bond issue was deferred because there were other things connected with it. The field still estimates that there will be no problem with respect to proceeding with the project.

Mr. RILEY. The city officials do not think that there is any problem involved?

Colonel STARBIRD. We have formal earlier assurances, sir. I do not know whether they have been rechecked with the city. The lands and rights-of-way have been coming available as they are needed, sir.

STATUS OF FUNDS

Mr. RILEY. Now, I note here that you have, as of the 31st of March, some $453,000 unobligated, and $1,225,000, or, practically, $1,226,000, unexpended.

Colonel STARBIRD. The unobligated amount, sir, is on the Atchison, Topeka & Sante Fe Railroad, and we have recently completed negotiations to award that contract. I believe the committee knows of the status of the situation now.

We estimate that the unexpended amount will be reduced to about $156,800 by the end of the year.

Mr. RILEY. Would that include the $200,000?

Colonel STARBIRD. It is exclusive of the $200,000 out on loans.

Colonel RILEY. Out on loans?

Colonel STARBIRD. Yes, sir. We have considered that carryover in connection with the requested funds for the fiscal year 1956.

Mr. RILEY. Do you expect to get this $200,000 back in the next fiscal year?

Colonel STARBIRD. Yes, sir; it is to be repaid in the next fiscal year.

FERRELLS BRIDGE RESERVOIR, TEX.

Mr. RILEY. The next project is Ferrells Bridge Reservoir in Texas. That is another project that has been under construction for several years; is that right, Colonel?

Colonel STARBIRD. The project is a continuing project, sir. It was initiated with the appropriation in the fiscal year 1955.

Mr. RILEY. Without objection we will insert pages 55 through 57 in the record.

(The matter referred to follows:)

FERRELLS BRIDGE RESERVOIR, TEX. (CONTINUING)

Location.—On Cypress Creek, Tex., approximately 8 miles west of Jefferson, Tex., and 70 miles northwest of Shreveport, La. Cypress Creek is a tributary of Red River at mile 288 (1946).

Authorization.—Flood Control Act of 24 July 1946.

Benefit-cost ratio.—1.39 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$17,700,000	
Estimated local cash contributions	3,200,000	
Estimated project cost	20,900,000	
Appropriations to June 30, 1954	497,000	
Appropriations for fiscal year 1955	750,000	
Appropriations to date	1,247,000	7
Appropriations requested for fiscal year 1956	2,450,000	21
Balance to complete after fiscal year 1956	14,003,000	

PHYSICAL DATA

Dam:

Type: Rolled earthfill.

Height: 77 feet (maximum above streambed.)

Length: 10,000 feet.

Crest elevation: 277.0 feet m. s. l.

Spillway:

Type: 200 feet wide concrete chute-type; crest elevation 249.5 feet m. s. l.

Capacity: With tailwater elevation at 214.4 feet m. s. l., maximum discharge capacity is 68,200 c. f. s.

PHYSICAL DATA

Reservoir capacity:

Conservation	3,800
Water supply storage	251,600
Flood control	587,000
Total	842,400

Outlet structure:

Type: Gated structure combining two controlled discharge conduits each 10 feet in diameter.

Capacity: 3,000 c. f. s. regulated flow, maximum discharge of 8,000 c. f. s. for pool elevation at spillway crest of 249.5 feet m. s. l.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Entire project Only reservoir mapping, preparation of required design memo's, preparation of preliminary plans and specifications for construction of the dam, and plans and specifications for relocation of Farm-to-Market Road No. 726 and connecting county road have been completed. Bids for construction of the latter road were received in December 1954.	2.4	Entire project, June 1959. Land acquisition, June 1959. Relocations, June 1957. Dam (all features), June 1959. Reservoir clearing, June 1959. Public use facilities, June 1958. Operational buildings, grounds, and utilities, June 1959.

JUSTIFICATION

Ferrells Bridge Reservoir is an essential component of the authorized reservoir-levee plan for the alleviation of floods in the Red River Basin below Denison Dam, Tex. Between 1843 and 1900, the Red River has been subjected to 6 great floods, and since 1900 serious floods downstream from Denison, in the order of decreasing magnitude, occurred in 1945, 1908, and 1938. The floods resulted in crop damage, loss of livestock, physical damage to levees, railroads, highways, industries, and other rural and urban development. The flood of 1945 caused damages estimated at $16 million, including $6,500,000 for crop losses. In the 20-year period 1927–46, 45 lives have been lost and property damage has amounted to $113,700,000 due to major floods. A comparison of stage relations discloses that operation of the reservoir-levee plan, assuming recurrence of experienced flood cycles, would eliminate more than 90 percent of flooding incident to Red River headwater floods, with resulting benefits from prevented damages to crops estimated at $1,400,000. On the same basis, flood damages other than to crops would be reduced from $460,000 to $58,000. Due to the great transportation network in the Red River Basin, together with industrial plants (many of primary importance to the national economy), large food and fiber production areas, the important steel producing installation of the Lone Star Co., and such important military installations as Red River Ordnance Works near Texarkana, and Barksdale Air Force Base and Louisiana Ordnance Works near Shreveport, it is considered that proper flood protection of the Red River Basin is important to national defense and essential domestic commerce.

Main stem Red River levees authorized under the reservoir-levee plan are substantially completed to an interim grade. Design of the upstream portion of these levees contemplated the completion of the construction of the authorized detention reservoirs on a reasonable construction schedule. As long as the reservoirs remain uncompleted, there is serious danger of the upstream portion of the levee system failing, as the result of the confinement of the flood flows. The additional confinement of flood flows, brought about by the improved levee system, has a strong tendency to produce higher flood stages against the levees, as well as throughout unprotected reaches of the river, pending the time of completion of the new authorized levee and reservoir system. Texarkana Reservoir is the

only one of six reservoirs authorized in the 1946 act on which substantial construction progress has been made to date. It is urgent that the additional detention reservoirs be completed as rapidly as possible to supplement the more advance status of the protective levee system, which without the reservoirs actually tends to aggravate the flood hazard. Ferrells Bridge Reservoir is a key reservoir for furnishing water supply to a series of towns in the Shreveport-Daingerfield-Jefferson area, where industrial expansion of great magnitude is occurring. Water from the reservoir will also be utilized by the Lone Star Steel Corp. plant (located on the north shore of the reservoir), currently undergoing a multimillion dollar expansion which will require 50,000 acre-feet. The State of Texas in 1953 created by the law the Northeast Texas Municipal Water District, to utilize 250,000 acre-feet for water supply of the surrounding towns and cities, including the storage requirements of the Lone Star Steel Corp. As the area possesses great natural resources, including oil, gas, iron, coal, sulfur, salt, etc., it is expected that industrial expansion will continue at an accelerated pace for some time to come, thus increasing the water needs cited above. No local cooperation is required for the reservoir features of the plan as authorized. However, modification of the authorized plan to include an additional 250,000 acre-feet of storage in Ferrells Bridge Reservoir for industrial and municipal water supply will require participation of local interests in the cost of the project in accordance with Public Law 208, 75th Congress. The Northeast Texas Municipal Water District is empowered to negotiate a contract with the Federal Government for the purchase of this water supply storage in Ferrells Bridge Reservoir. This contract is now in process of execution.

Fiscal year 1956.—The requested amount of $2,450,000, in addition to $608,000 contribution required of local interests, will be applied to:

Continue acquisition of lands in the reservoir area	$683,000
Initiate construction of relocation of State Highway No. 26	404,900
Initiate construction of relocation of Farm-to-Market Road No. 729	215,000
Continue construction of relocation of Farm-to-Market Road No. 726	460,000
Initiate construction of dam	1,000,000
Engineering and design	95,100
Supervision and administration	200,000
Total	3,058,000

Mr. RILEY. Do I understand that the reservoir level here is to be increased with funds other than Federal funds?

Colonel STARBIRD. In this project, sir, there will be 587,000 acre-feet of flood-control storage, and in addition there will be 251,000 acre-feet of conservation storage, water-supply storage which is included.

The gross overall total is 842,000 acre-feet, including a small sediment pool.

The local interests are to pay the incremental cost of including the water-supply storage in the reservoir, sir.

Mr. RILEY. They will have the use of that water?

Colonel STARBIRD. They will, sir.

Mr. RILEY. Have they made adequate arrangements to take care of their part of the obligations?

Colonel STARBIRD. Yes, sir. By State law they have been organized as a water conservation district. We have completed negotiations with them, and they have signed the contract. It is actually the second draft of the contract. The new contract is now under review in our office. They are committed to make contribution to the approved project roughly in proportion to the rate at which Federal appropriations will become available.

Mr. RILEY. Mr. Magnuson?

Mr. MAGNUSON. How do the local interests meet their obligations?

Colonel STARBIRD. I underderstand, sir, that they intend to meet them through the sale of bonds. I would like to reconfirm that.

(The following information was supplied later:)

By act of the State legislature, the State of Texas created on April 23, 1953, the Northeast Texas Municipal Water District to provide contribution for, and make use of, conservation storage in Ferrell's Bridge Reservoir. Legislation authorized the district to raise funds through issuance of its negotiable bonds. However, the first installment of the water district is $142,000, payable immediately after the contract is signed (19 percent of the $750,000 appropriated for fiscal year 1955). The water district is attempting to work out arrangements with the Lone Star Steel Corp. whereby it will advance that amount. The next installment, 19 percent of $2,450,000, expected in fiscal year 1956, will come from private capital. The district plans to sell some of the interest in the water to raise that amount. There is a bill presently before the Texas Legislature which will set up a commission to sell bonds in the State of Texas and finance water systems such as this one. The bill will authorize commissioners in the State of Texas to sell bonds in the amount of $100 million. As soon as the bill is set up, the commission will be formed, estimated by them as sometime in fiscal year 1956. The water district intends to go to that commission for the remaining contribution.

Mr. MAGNUSON. You say you have redrafted the contract?

Colonel STARBIRD. Yes, sir; we had one minor change.

As far as the initial amount is concerned, there was no question that both parties were agreed.

However, with respect to the maintenance clause we felt that the original recommendation of our field agency, and which was signed by the conservation district, was a little low. So, we went back to them and we now have the revised contract in our office under review.

Mr. MAGNUSON. It is more advantageous to the Federal Government?

Colonel STARBIRD. Yes, sir; it is more advantageous to the Government; that is correct, sir.

Mr. DAVIS. Is this water requirement for the Lone Star Steel Corp. included in that portion of the cost that is to be paid for by the so-called local interest?

Colonel STARBIRD. Yes, it is part of the overall of the Northeast Texas Municipal Water District.

TEXARKANA RESERVOIR, TEX.

Mr. RILEY. The next project is the Texarkana Reservoir in Texas. Without objection we will insert pages 65 through 67 of the justifications.

(The matter referred to follows:)

TEXARKANA RESERVOIR, TEX. (CONTINUING)

Location.—On Sulphur River, Tex., 45 miles above the mouth, approximately 9 miles southwest of Texarkana, Ark.-Tex. Sulphur River is a tributary of Red River at mile 353 (1946).

Authorization.—1946 Flood Control Act.

Benefit-cost ratio.—1.42 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$34,000,000	
Estimated local cash contributions	0	
Estimated project cost	34,000,000	
Appropriations to June 30, 1954	24,274,000	
Appropriations for fiscal year 1955	3,300,000	
Appropriations to date	27,574,000	81
Appropriations requested for fiscal year 1956	5,000,000	96
Balance to complete after fiscal year 1956	1,426,000	

PHYSICAL DATA

Dam:

Type: Rolled earth fill.

Height: 100 feet (maximum above stream bed).

Length: 18,500 feet.

Crest elevation: 286.0 feet mean sea level.

Spillway:

Type: 200 feet wide concrete chute type, consisting of a trapezoidal approach channel, weir, and chute, and stilling basin with vertical walls. Crest elevation, 259.5 feet mean sea level.

Capacity: With pool at elevation 278.9 feet, mean sea level discharge capacity is 63,200 cubic feet per second.

Reservoir capacity:	*Acre-feet*
Conservation	145,300
Flood control	2,509,000
Total	2,654,300

Outlet structure:

Type: Gated structure—4 passages, 2 transitions, 220-foot diameter conduits, conventional stilling basin with vertical side wall and splitter wall.

Capacity: 10,000 cubic feet per second regulated flow; maximum discharge of 27,600 cubic feet per second for pool elevation at spillway crest of 259.5 feet mean sea level.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Entire project	64	Entire project, June 1957.
Acquisition of reservoir area	85	Land acquisition, June 1956.
Relocations	28	Relocations, June 1957.
Construction of dam consisting of terrace section, flood plain section, closure section, spillway, and outlet works.	100	Diversion through outlet works, July 1953.
Reservoir clearing	64	Reservoir clearing, June 1955.
Channel improvements below the dam	0	Channel improvement below dam, June 1957.
Public use facilities	0	Public use facilities, June 1957.
Operation buildings, grounds, and utilities	0	Operational buildings, grounds, and utilities, December 1955.
Permanent operating equipment	77	Permanent operating equipment, December 1955.

JUSTIFICATION

Texarkana Reservoir is an essential component of the authorized "reservoir-levee" plan for the alleviation of floods in the Red River Basin below Denison Dam, Tex. Between 1843 and 1900, the Red River has been subjected to six great floods; and, since 1900, serious floods downstream from Denison in the order of decreasing magnitude occurred in 1945, 1908, and 1938. The floods resulted in crop damage, loss of livestock, physical damage to levees, railroads, highways, industries, and other rural and urban developments. The flood of 1945 caused damages estimated at $16 million, including $6,500,000. for crop

losses. In the 20-year period 1927-46, 45 lives have been lost and property damage has amounted to $113,700,000, due to major floods. A comparison of stage relations discloses that operation of the reservoir-levee plan, assuming recurrence of experienced flood cycles, would eliminate more than 90 percent of flooding incident to Red River headwater floods, with resulting benefits from damages prevented to crops estimated at $1,400,000. On the same basis, flood damages, other than to crops, would be reduced from $460,000 to $58,000. An important but unevaluated corollary benefit will accure by the prevention of flooding of the main highway and railroads serving the Red River Ordnance Works (located immediately to the north of the reservoir), which is among the Nation's largest munitions facilities, one of the few retained in a permanent postwar operative status. Due to the great transportation network in the Red River Basin together with industrial plants (many of primary importance to the national economy), large food and fiber production areas, and such important military installations as Lone Star and Red River Ordnance Works near Texarkana, and Barksdale Air Force Base and Louisiana Ordnance Works near Shreveport, it is considered that proper flood protection of the Red River Basin is important to national defense and essential to the domestic economy.

Fiscal year 1956.—The requested amount of $5 million will be applied to:

Complete acquisition of lands in the reservoir area	$239,500
Continue relocations	4,234,900
Complete construction of operational buildings, grounds, and utilities	65,400
Complete purchase of permanent operating equipment	2,100
Engineering and design	75,000
Supervision and administration	383,100
Total	5,000,000

Until all relocations are completed, it will be impossible to use the dam for impoundment of water to the fullest extent. Under present conditions the gates are left open at all times to prevent impoundment which may hinder the contractors engaged on highway and railroad relocation work. There is a contract in force for furnishing the municipalities of Texarkana, Ark.-Tex., with water supply storage, to assure a firm water supply of 13 million gallons daily for industrial and municipal uses. The cities will not be able to draw this very urgently needed water until all relocations are completed, which will then permit regulated impoundment of water. Relocations to be completed or continued during fiscal year 1956 are: The St. Louis Southwestern Railway lines with appurtenant Western Union telegraph lines, American Telephone & Telegraph Co. lines, United States Highway No. 68, and three minor county roads.

Mr. RILEY. This is another project that has been under construction over a period of several years; is that right?

Colonel STARBIRD. That is correct, sir. This was initiated in 1948, and is nearing completion.

Mr. RILEY. Now, I note that in this instance you have increased the estimated cost $1,900,000. Will you advise us as to how that increase came about?

Colonel STARBIRD. I believe the latest sheets carry it as $1 million, an increase from $33 million last year to $34 million this year. There are several changes involved in that. Some of them are upward and some downward.

However, the main increase is the increased cost of the relocation of Highway No. 67.

Looking at your map you will see that that highway parallels the Cotton Belt Railroad, crossing the reservoir and its arms in several places. The overall distance within which these places occur is approximately 65 miles.

Mr. PHILLIPS. I have not found that yet.

Colonel STARBIRD. Going across your map from right to left, the highway runs from Texarkana, finally crossing the main river.

Mr. PHILLIPS. Yes, I have it.

Colonel STARBIRD. In this case we initiated negotiations about that highway in 1949. However, at that time we were unable to reach an agreement with the railroad as to the alinement that the railroad would follow.

This highway is a high-speed, well-improved highway following the generally flat contour of the land. It carries an estimated 3,000 vehicles per day. So it is a heavily traveled highway.

Until we could reach a firm agreement with the railroad on the alinement we did not go into detailed surveys on the highway.

That was brought about partly due to the highway department pointing out that until we had the railroad alinement it was of little use to expend large sums in planning and alining the highway.

As soon as we reached an agreement with the railroad which, incidentally, as this committee may remember, involved first throwing the case into court, and then withdrawing it at a later date; as soon as we reached an agreement we resumed negotiation with the highway and established the alinement here given. The estimated cost, upon detailed computation, was substantially higher than the preliminary estimate.

As I said earlier there were other smaller compensating changes, but the main change was one of over $1 million involved in this highway relocation.

Mr. RILEY. Have you obtained an agreement about the relocation of the county roads?

Colonel STARBIRD. We have reached an agreement with the two counties which are concerned, sir.

Mr. RILEY. Is this project wholly financed by the Federal Government?

Colonel STARBIRD. It is entirely financed by the Federal Government, sir. However, we do have a small water contract already with the city of Texarkana on a reimbursable basis. They use approximately 13,500 acre-feet per year.

Mr. RILEY. And if you obtain this appropriation it will practically complete the project, will it?

Colonel STARBIRD. Only a smaller appropriation will be needed for next year, sir.

TABLE ROCK RESERVOIR, MISSOURI AND ARKANSAS

Mr. RILEY. The next project is Table Rock Reservoir in Missouri and Arkansas. This is a multiple-purpose project; is it not?

Colonel WHIPPLE. Yes, sir.

Mr. RILEY. Without objection we will insert pages 73 and 74 of the justifications.

(The matter referred to follows:)

TABLE ROCK RESERVOIR, MO. AND ARK. (CONTINUING)

Location.—The dam is located on the White River, 529 miles above the mouth in Taney and Stone Counties, 40 miles south of Springfield, Mo., 8 miles upstream from Branson, Mo. The reservoir will extend into Barry County, Mo.; and Boone, Carrol, and Benton Counties, Ark.

Authorization.—1941 Flood Control Act.

Benefit-cost ratio.—1.21 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$68,700,000	
Estimated local cash contributions	0	
Estimated project cost	68,700,000	
Appropriations to June 30, 1954	5,151,000	
Appropriations for fiscal year 1955	2,500,000	
Appropriations to date	7,651,000	11
Appropriations requested for fiscal year 1956	11,000,000	27
Balance to complete after fiscal year 1956	50,049,000	

PHYSICAL DATA

Dam:

Type: Concrete gravity and earth embankment.

Height: 252 feet above stream bed.

Length: 1,602 feet (concrete section), 4,821 feet (embankment section).

Spillway:

Type: Gate controlled, concrete ogee weir with stilling basin.

Capacity: (maximum pool) 569,000 cubic feet per second.

Reservoir capacity:

	Acre-feet
Power	1,932,000
Flood control	760,000
Dead storage	770,000
Total	3,462,000

Power installation:

Initial: 2 units at 50,000 kilowatts; 100,000 kilowatts.

Ultimate: 4 units at 50,000 kilowatts; 200,000 kilowatts.

Presently planned: 2 units at 50,000 kilowatts; 100,000 kilowatts.

Rated head: 190 feet.

Status (Jan. 1, 1955)

	Percent	Completion schedule
Lands and damages	4	June 1960.
Relocations	0	June 1959.
Reservoir clearing	0	March 1958.
Dam	1	June 1959.
Powerplant	0	June 1959.
Construction facilities	96	
Entire project	5	June 1960.
		Power on line:
		1st unit December 1958.
		2d unit March 1959.

JUSTIFICATION

The project is 1 of a system of 9 reservoirs for flood control and hydroelectric power production in the White River Basin. The relatively recent expansion of the aluminum industry in Arkansas diverted 150,000 kilowatts of capacity from Bull Shoals which had previously been committed to fulfill in part the rapidly growing demands for rural electricity. A recent report showed that the power needs in the area are expanding at a rapid rate and that there will be a need for substantially more power by the time the project is completed than the project will make available. The report also showed that the power from the project can be fully integrated into the power supply of the area. The project will provide flood protection of the town to Branson and Hollister, Mo., and will provide flood-control benefits to about 1,064,100 acres of land and 25 towns along the White River downstream from Bull Shoals Dam.

Fiscal year 1956.—The requested amount of $11 million will be applied to:

Start relocations of State roads	$200,000
Continued acquisition of lands in the reservoir area	1,437,500
Continue construction of the dam	7,801,700
Continue procurement of turbines, generators, transformers, and other machinery and operating equipment	331,500
Engineering and design	449,000
Supervision and administration	780,300
Total	11,000,000

The funds requested for fiscal year 1956 are required for continuation of work under contracts to be awarded in fiscal year 1955, for the timely award of additional contracts for powerplant equipment, for continuation of the land-acquisition program at the rate necessary to keep pace with construction, and for initiation of State road relocations. The request represents the minimum amount needed for economical progress at currently scheduled rates in order to provide for initial power on the line in December 1958.

Mr. RILEY. Can you tell me briefly the status of this project at this time?

Colonel WHIPPLE. Sir, we received funds last year to resume construction of the project, and we have successfully let a contract for the construction of the major portion of the dam. The bids were very good, and we awarded a favorable contract, and as a result of that we have been able to reduce the estimated cost of the project by $10 million.

The contractor mobilized with unusual speed. He is a very experienced contractor, and the work is going extremely well. There is every indication that he is going to equal or exceed his contract schedule, and we expect that the funds appropriated will be substantially exhausted by the end of this year.

We are moving as fast as we can toward real-estate acquisition and the settlement of highway relocation matters with the State of Missouri. These matters have to be coordinated with construction. We will increase the flood heights by fall, in the event of floods in the river at this point, on account of backwater affected by downstream actions at the dam site. We have a closely coordinated schedule.

Mr. RILEY. You do not expect to have an unobligated balance on the 30th of June, but you have nearly $1 million unobligated at the present time, and unexpended some 2,827,000.

Colonel WHIPPLE. Yes, sir.

Mr. RILEY. Do you think you are going to be able to meet your schedule and get all of that money obligated on a good sound basis?

Colonel WHIPPLE. Yes, sir, we do. The money, as a matter of fact, could be obligated today because we have a continuing contract for a great deal more than that amount. We have held out sufficient funds

for real-estate operations and other contract work around the site, so that as regards obligation we are sure to be able to obligate all of the money by the end of the fiscal year.

In regard to expenditure, the way this contractor is going he is about ready to pour his initial concrete now, if he has not already done so. He has a very large working force. I visited the site last winter and I found he is a very active contractor, and we are quite sure that this money will be expended, practically all of it, during the course of the current year.

Mr. RILEY. Have you run into any problems on your relocation negotiations, or have you not gotten far enough along to know whether you are going to have any problems in that connection or not?

Colonel WHIPPLE. We usually have problems in connection with major relocations.

In this case the highest priority is that of obtaining settlement with the Missouri State Highway Commission.

We have made a very detailed study of the highway relocation plan in this area, and we have reached a solution which we felt was satisfactory.

The characteristics of this area are that it has been developed a long time. There are large numbers of roads throughout the area, although those roads are relatively little used. There are excellent gravel roads about the project where the traffic may be only 100 or 200 vehicles a day.

On the other hand, some of these roads have quite inadequate design criteria, and there are unsafe portions of the highways.

The plan that we have takes cognizance of the situation as a whole, and we have presented the plan and it is being negotiated with the State now. It does not call for relocating all of the crossings which go across the reservoir.

The State has not yet accepted the proposal but the negotiations have not yet advanced to such a state that I would say we are in any unusual situation.

Mr. RILEY. Am I correct in recalling that the area to be flooded is somewhat sparsely settled?

Colonel WHIPPLE. That is correct, and these communities that are shown on here, many of them are quite small. At the same time the population is very widely scattered through there. They all have to have access to county centers and schools. They have been there a long time, and they have those highways now, but even though the area is sparsely settled we have to provide a very substantial replacement highway system by which they can get access to those facilities.

As you can see there is a crossing of the White River at Beaver, and one near the dam site, and then there are intervening crossing in between, one of which is an important highway, Highway 13, and the other three of which have relatively sparse traffic on them.

One of the problems involved here is that most of the reservoir area is in the State of Missouri. Some of the population is on the south side of the reservoir, which you might think would go to schools which are adjacent, but they cannot cross the State line. Those people all have to go to schools and have access to community centers on the north side of the reservoir, where the county seats and the principal schools are located, particularly in Galena, Reeds Spring and Cassville.

Mr. RILEY. You mentioned Beaver. Is that one of the locations under consideration for another project?

Colonel WHIPPLE. Yes, sir. There is another project authorized just a short distance upstream from Beaver, which would be also a multiple-purpose project. It is not in the budget for consideration this year.

Mr. RILEY. Is there any planning money allocated to that this year?

Colonel WHIPPLE. No, sir.

OPERATION AND MAINTENANCE, CORPS OF ENGINEERS

Mr. RILEY. We now go to operation and maintenance in the Arkansas, Red, and White River Basin.

Without objection we will insert pages 79 through 83 in the record.

(The matter referred to is as follows:)

ARKANSAS-RED-WHITE BASIN

OPERATION AND MAINTENANCE, GENERAL, FISCAL YEAR 1956

1. Navigation

(*a*) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels, dredging, and the repair of channel stabilization works; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $180,000 for fiscal year 1956 is required for essential maintenance work on 2 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified work and has resulted in a backlog of work, particularly structural repairs. This condition continues to exist.

Tentative allocation, fiscal year 1956

Arkansas:	
Arkansas River and tributaries, Arkansas and Oklahoma (bank stabilization)	$150,000
Red River below Fulton	30,000
Total channels and harbors	180,000

(*b*) *Locks, dams, reservoirs, and canals.*—The work under this activity consists of the operation, maintenance, and repair of locks and dams on the Ouachita and Black Rivers transporting more than 16 million ton-miles of commerce annually. The budget estimate of $440,000 for fiscal year 1956 provides for the necessary operation and ordinary maintenance of the locks and dams, essential channel work and the most urgent repair of structures. The amount requested in the fiscal year 1956 is approximately $17,000 less than the amount available in fiscal year 1955, and is the minimum necessary for adequate and efficient operation and maintenance of the projects.

Tentative allocation fiscal year 1956

Arkansas: Ouachita and Black Rivers	$440,000
Total navigation	620,000

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $871,100 provides for the operation and ordinary maintenance of 15 flood control reservoirs in the Arkansas-Red-White Basin during fiscal year 1956, and nondeferrable rehabilitation work. The benefits that accrue from the impoundment of damaging flood waters by this ex-

tensive reservoir system are substantial. The amount requested in fiscal year 1956 is approximately $18,000 less than the amount available in fiscal year 1955, and is the minimum necessary for adequate and efficient operation and maintenance of the projects.

Tentative allocation fiscal year 1956

Arkansas:	
Blue Mountain Reservoir	$51,000
Nimrod Reservoir	52,000
Colorado: John Martin Reservoir	126,000
Kansas: Fall River Reservoir	66,000
Louisiana:	
Bayou Bodcau Reservoir	9,000
Wallace Lake Reservoir	4,100
Missouri: Clearwater Reservoir	52,000
New Mexico: Conchas Reservoir	72,000
Oklahoma:	
Canton Reservoir	72,000
Fort Supply Reservoir	59,000
Great Salt Plains Reservoir	50,000
Heyburn Reservoir (Polecat Creek)	33,000
Hulah Reservoir	58,000
Wister Reservoir	66,000
Texas: Texarkana Reservoir	95,000
Scheduling of flood control reservoir operations	6,000
Total flood control reservoirs	871,100

(*b*) *Other (including channel improvement projects, miscellaneous items and inspections)*.—The budget estimate of $14,600 provides for partial channel clearing of the lower 15 miles of the Bayou Pierre project and for condition surveys and inspection of completed works.

Tentative allocation, fiscal year 1956

Louisiana: Bayou Pierre	$10,000
Inspection of completed works	4,600
Total flood control, other	14,600
Total flood control	885,700

3. Multiple-purpose projects, including power

The budget estimate of $1,641,000 for operation and maintenance of 8 multiple-purpose projects in the Arkansas-Red-White Basin, having a total generating capacity of 471,000 kilowatts is the minimum amount necessary for operational requirements during fiscal year 1956. It contemplates deferment of other than indispensable ordinary maintenance and rehabilitation work. The amount requested for fiscal year 1956 is $152,000 less than the amount available in fiscal year 1955.

Arkansas:	
Blakely Mountain Reservoir	$205,000
Bull Shoals Reservoir	267,000
Narrows Reservoir	165,000
Norfolk Reservoir	201,000
Oklahoma:	
Denison Reservoir	347,000
Fort Gibson Reservoir	278,000
Pensacola Reservoir	7,000
Tenkiller Ferry Reservoir	171,000
Total multiple-purpose projects	1,641,000
Grand total, Arkansas-Red-White basin	3,146,700

Colonel STARBIRD. Mr. Gurnee will make the presentation on operation and maintenance.

Mr. RILEY. Do I understand that the total requests on operation and maintenance have been reduced from last year?

Mr. GURNEE. The total amount requested for O. and M. for this basin is increased $147,000 over last year's actual appropriations, sir.

Mr. RILEY. You have increased the estimate, then, this year over last year; is that right?

Mr. GURNEE. Yes, sir; based on actual appropriations.

Mr. RILEY. What is the cause of that increase?

Mr. GURNEE. Our request, I believe, last year, sir, was higher than this year. I would have to break those down into the individual categories to explain the increases in detail.

Mr. RILEY. If you will, take each one of them briefly, please.

Mr. GURNEE. Yes, sir.

Under "Channels and harbors," last year the appropriated funds amounted to $119,000. We are asking $180,000 this year.

The primary increase is in the Arkansas River and tributary work.

You will remember that when Colonel Allen testified this morning we had approximately $16 million worth of that sort of work completed.

This is relatively minor repair work, approximately 1 percent of the completed work, scattered throughout the reaches where emergency improvements have been made, and that is approximately $60,000 more than we asked for last year.

Mr. RILEY. Did you have any difficulty last year in keeping up the work which you thought should be done?

Mr. GURNEE. No, sir, but the project is a year older. On the Ouachita and Black Rivers, we have a reduction in funds requested. That is, under locks, dams, reservoirs, and canals we have a reduction from the actual funds used last year of $18,000.

On the flood-control reservoirs we have a net decrease of approximately $40,000 from last year.

In general all of our flood-control projects have approximately a 10-percent reduction over the appropriated funds for last year.

There are one or two exceptions, such as the John Martin Reservoir where our main interceptor header pipe for the pressure relief wells requires replacement this year at a cost of approximately $50,000.

That reservoir has been in operation for over 12 years, and the pressure relief system has been in slightly longer than that.

The only other increase in flood-control reservoirs is the case of the Great Salt Plains Reservoir in Oklahoma where we have a requirement for upstream riprap repairs that is somewhat extraordinary. The total amount required in 1956 is only $2,000 more than in 1955.

The only other major reservoir which has an increase is Texarkana. It is going up, incidentally, from $63,000 to $95,000, and the reason there is because this project is still under construction, and we are gradually picking up more and more of the maintenance requirements as the project nears completion. That is one of the projects that was in the new work construction budget.

Mr. RILEY. Is this budget estimate of $14,600 for partial channel clearing of the lower 15 miles of the Bayou Pierre project, a new item?

Mr. GURNEE. No, sir. Although we had no maintenance requirements on that project last year, that is one of the 26 local protection channel improvement projects which were authorized between 1936

and 1938 on which the Government is required to perform the maintenance work.

There was no maintenance requirement last year.

TUTTLE CREEK

Mr. RILEY. A couple years ago, General, we visited, that is the members of this committee visited, the Missouri Valley and other projects that were under construction by the engineers, and I recall we visited the project out at Tuttle Creek, which has been a very controversial proposition, I think, for some years.

While there are no requests in the budget this year for work at Tuttle Creek, this committe would like to have some information with regard to the present status of the situation there.

Did the corps make any recommendations to the Budget Bureau for funds for this project this year?

Colonel STARBIRD. There was no recommendation in the formal submission that was sent by the Secretary of the Army.

Mr. RILEY. No request?

Colonel STARBIRD. There was no formal request in the submission, sir. It was discussed with the Bureau of the Budget.

Mr. RILEY. In the discussion the other day, when General Potter was here, I seem to remember that he thought that it was not advisable to continue revetment and levee work from Kansas City south until this river, and maybe some others, were controlled better than they are now. Do I have the wrong impression with regard to that?

Colonel STARBIRD. I believe your impression is correct, sir. A portion of the work below Kansas City has not been undertaken, and a major factor is the necessity for gaining further control of the tributaries.

Mr. RILEY. So we might say, then, or I can say that my impression is that this is one of the key projects for the further development and control of the flood waters in the Missouri from Kansas City to the Mississippi. Would I be correct in that assumption?

Colonel STARBIRD. We consider it a key reservoir in our comprehensive plan, sir.

Mr. RILEY. What is the status of the work at Tuttle Creek now? Is anything going on?

Colonel STARBIRD. Nothing is going on right now, sir; no construction.

Mr. RILEY. We have spent some funds there, have we not?

Colonel STARBIRD. Yes, sir. The total amount is approximately $5 million.

Mr. RILEY. Does that include the money which has been spent on the levees, dikes, and local protection installments?

Colonel STARBIRD. No.

Mr. RILEY. Or were they in addition to the work done on the Tuttle Creek project proper?

Colonel STARBIRD. That work on dikes and levees is a separate item, sir. The amount I mentioned is for Tuttle Creek only.

Mr. RILEY. Do you have any figures as to what has been spent on dikes and local protection on the streams that feed into Tuttle Creek?

Colonel STARBIRD. None on the streams that feed into Tuttle Creek.

We have had expenditures further down the river, particularly in the Kansas City area.

Mr. RILEY. It seems to me that I recall certain conservation projects, or something of that nature up in the hills above Tuttle Creek, of small dams or pools. It perhaps didn't come under the engineers, but do you know of any such work?

Colonel STARBIRD. Sir, I cannot answer as to whether any work has been accomplished in the way of small dams and reservoirs above Tuttle Creek. I can find it out and insert it in the record.

Mr. RILEY. I would appreciate it if you would put it in.

I am under the impression that some work has been done.

General ITSCHNER. We can say there has been a great interest in that. Whether the work actually has been accomplished or not we are not prepared to say at this time, sir.

(The matter referred to follows:)

During perparation of the Kansas River report, which has been printed as H. R. 642, 81st Congress, 2d session, consideration was given to a number of potential reservoir projects in the Blue River Basin above Tuttle Creek Reservoir as possible alternates to Tuttle Creek Reservoir. Some of these included conservation storage. None of the six alternate combinations of reservoirs studied proved to be economically justified at that time. The studies are described in H. R. 642.

The drainage area above Tuttle Creek Reservoir is 9,556 square miles. This represents 16 percent of the total Kansas River Basin area of 60,060 square miles.

There are two USDA pilot watershed projects in the Blue River Basin. The Snipe Creek project is on Snipe Creek in Marshall County, Kans. The total watershed area is 25.6 square miles. Eight small reservoirs are planned, of which 3 were completed in 1954 and 3 more are scheduled for completion in 1955. The Indian Creek project is on Indian Creek, Sage County, Nebr. The total watershed area is 74.8; 30 small reservoirs are planned, of which 2 were completed in 1954.

There is one new USDA watershed project approved for study under the Hope-Aiken Act, this is the North Okner Creek project in Riley County, Kans. Total watershed area is 21 square miles. No information is available for any small reservoir which might be included in the project.

The drainage area which will be controlled by USDA reservoirs in the above projects is not known. Obviously, it will be much less than the aggregate watershed area which is only 121.4 square miles. They can have no effect on the need for Tuttle Creek Reservoir which controlled an area of 9,556 square miles.

Mr. RILEY. So far as the engineers are concerned, they have done no work above the Tuttle Creek Dam?

Colonel STARBIRD. We have not, sir.

Mr. RILEY. What about downstream? There are several cities as I recall.

Colonel STARBIRD. Yes, sir.

Mr. RILEY. Between Tuttle Creek Dam and Kansas City.

Colonel STARBIRD. Yes, sir; there are several. Working from Kansas City back up there is Topeka, Lawrence, Manhattan where we have authorized construction.

Mr. RILEY. Has any work been done to protect those cities from flood?

Colonel STARBIRD. Yes, sir, there has been. At Kansas City we have brought the local protection project a substantial distance toward completion.

At Topeka we have completed part of an earlier project.

I believe we have done nothing at Lawrence and nothing at Manhattan, sir.

Mr. RILEY. What about the work which was done at Topeka and at Kansas City? Is that in any danger due to the suspension of the work at Tuttle Creek?

Colonel STARBIRD. The Tuttle Creek Reservoir will control about 16 percent of the total valley above Kansas City.

The downstream works are planned under the assumption that Tuttle Creek and the other upstream reservoirs will be completed, sir.

Mr. RILEY. In other words, I gather from what you tell me that the local protection around these cities between Tuttle Creek and Kansas City will not be fully effective without the dam.

Is any study being made to devise any other means of taking care of the flood-control projects around these cities in case Tuttle Creek is not built?

Colonel STARBIRD. No, sir; there is no other means being devised or under study by the Corps of Engineers at the present time.

Mr. RILEY. Would it be feasible in your opinion to protect these towns in any other way in order to control floods on this stream?

Colonel STARBIRD. Sir, the determintaion of the feasibility would require an extensive and further engineering analysis of the situation. I could not answer that without the benefit of such an investigation.

A comprehensive plan was developed as the result of detailed studies, sir.

Mr. RILEY. Is any study being made of the bank erosion in the Kaw River in Kansas?

Colonel STARBIRD. There is an outstanding review study underway which is considering the matter of bank protection, sir.

Mr. RILEY. You have funds for that?

Colonel STARBIRD. Yes, and we have requested funds in 1956 to continue that study, sir.

Mr. RILEY. What about the Kansas Basin? Is that included in this general investigation and will you allocate funds to make a survey of the Kansas Basin?

Colonel STARBIRD. This survey which I mention is for Kansas, sir.

Mr. RILEY. Takes in both of these projects?

Colonel STARBIRD. Right, sir.

Mr. RILEY. The present status, as I recall it, in testimony given by General Potter and from some of the discussion here today, the work in the lower Missouri is delayed pending the reaching of a decision with regard to the matter which we are now discussing and other relevant matters before you can proceed on a sound engineering basis. Is that right?

Colonel STARBIRD. Some of the lower river work is dependent upon the overall storage, of which Tuttle Creek is an important element, sir.

Mr. RILEY. How much damage is being done to the work in place at Tuttle Creek by this delay, or is there any damage?

Colonel STARBIRD. I have looked at it, sir, and I would say there is little damage being done. There is a substantial portion of embankment there. Undoubtedly there will be minor erosion on that embankment.

We have back-filled in certain areas over the conduit and we will have to look at that conduit again when work is resumed.

Mr. RILEY. Is this a purely flood-control project or is any power involved?

Colonel STARBIRD. There is no power involved, sir.

Mr. RILEY. Purely a flood-control project.

Colonel STARBIRD. It has a sediment pool in it, sir, and initially, until that sediment pool fills, which will be an extended number of years, that pool is available for conservation use.

Mr. PHILLIPS. Conservation of water?

Colonel STARBIRD. Yes, for low flow conservation benefit of the stream below. Kansas has suffered from a drought in recent years.

Mr. DAVIS. My recollection was that this was to be used as a dry reservoir.

Colonel STARBIRD. It is a dry reservoir by directive of Congress right now. It is available should Congress wish to change its direction.

Mr. RILEY. I believe we had testimony some years ago that this dam probably would be used some 3 out of 4 years, or something of that nature. Is that right?

Colonel STARBIRD. The land, sir?

Mr. RILEY. Yes.

Colonel STARBIRD. I cannot confirm that number but it will be usable, a large porting will be usable, sir.

Mr. DAVIS. Off the record.

(Discussion held off the record.)

Mr. RILEY. Inasmuch as this project is incorporated in the overall flood-control picture, this committee is reluctant to put very much money in the lower Missouri Valley for flood control when you have a danger there of losing the work which might have proceeded. It is for that reason, General, that I bring this up, because of the effect that it would have on the attitude of this committee in considering appropriations for the flood-control project on the lower Missouri.

I do not think it would be intelligent to reach a decision without knowing the situation which exists in these regulated dams upstream and in the tributaries.

General ITSCHNER. This undoubtedly, sir, is the most important dam in the control of the Kansas River, and until the Kansas River is controlled it is not desirable to build levees from Kansas City to the mouth of the Missouri River.

Mr. RILEY. Any other questions with regard to this?

Mr. DAVIS. I have no questions.

Mr. MAGNUSON. Was the local opposition the fundamental reason for suspension of work on Tuttle Creek and the budget for that project?

Colonel STARBIRD. My personal understanding is that that was the large factor.

Mr. RILEY. General, thank you very much for your testimony.

WEDNESDAY, MAY 4, 1955.

GENERAL INVESTIGATIONS, BUREAU OF RECLAMATION

Mr. RILEY. Next we go to the Bureau of Reclamation investigations on the Arkansas, White, and Red Rivers.

Do you have a general statement, Mr. Bennett, on this project?

Mr. BENNETT. I would like to say just a few general words.

Mr. RILEY. All right. We will be happy to hear from you, sir.

Mr. BENNETT. Out of our proposed 1956 budget for investigations, we intend to utilize in 1956 approximately $255,000 in this basin.

That represents a decrease over last year. The principal reason for the decrease is the shift in emphasis.

Mr. RILEY. How much of a decrease?

Mr. BENNETT. About $87,000.

Mr. RILEY. All right. Proceed.

Mr. BENNETT. Last year and the year previous we were concentrating on preparing the basin report on the Arkansas-White-Red River Basin. That field work will be completed this year. The only thing in fiscal 1956 will be a final cleaning up and processing of the basin report, so we will now pick up and start detailed project investigations.

We propose to put the money on nine investigations, of which one will be continuing, the Fryingpan-Arkansas.

The others will be initiation, and we expect to complete two of those.

Mr. RILEY. Without objection we will include in the record pages BR–6, 7 and 8.

(The matter referred to follows:)

Schedule of general investigations program, fiscal years 1955 and 1956, Arkansas-White-Red Basin

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations:							
Basin surveys, regions 5 and 7:							
Arkansas-White-Red River Basins	Colorado-Kansas-New Mexico-Oklahoma-Texas.	$1,785,639	$1,461,541	$301,098	$23,000	----------	Investigations are directed toward preparation of the Bureau's contribution to the comprehensive integrated plans for the basin now being developed by the Arkansas-White-Red Basin Inter-Agency Committee, scheduled for completion in fiscal year 1955. The investigation is to establish and define potentialities and evolve a plan for beneficial use and control of the waters in an integrated basinwide development for irrigation, municipal and industrial water supply, flood control, power, pollution abatement, drainage, recreation, fish and wildlife and other purposes. Small amount of funds required in fiscal year 1956 for review and clearance of Arkansas-White-Red report as well as supplemental reports on individual developments in the basin.
Subtotal, basin surveys	----------	1,785,639	1,461,541	301,098	23,000	----------	
Project investigations:							
Region 5:							
Lawton-Duncan project	Oklahoma	100,000	----------	----------	50,000	$50,000	Initiation of investigation to determine feasibility of providing municipal and industrial water to meet the rapidly expanding needs of the city of Lawton and Duncan, Okla. Investigation to be completed in fiscal year 1957.
Liberty Bottoms project	do	20,000	----------	----------	20,000	----------	Initiation and completion of investigation of feasibility of relieving serious drought now seriously curtailing crop production on 8,000 acres of land.

Schedule of general investigations program, fiscal years 1955 and 1956, Arkansas-White-Red Basin—Continued

Program item	State	Total estimated cost	Cost to June 30, 1954	Fiscal year 1955 program	Fiscal year 1956 estimate	Balance to complete investigation	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engineering and economic investigations—Con.							
Project investigations—Continued							
Region 5—Continued							
Mangum project	Oklahoma	$149,631	$59,631		$30,000	$60,000	Geological exploration at Mangum Reservoir site to determine feasibility of creating storage reservoir to provide supplemental water for the existing W. C. Austin project to replace storage in Altus Reservoir which is rapidly being lost by sedimentation.
Norman project	do	107,694	94,694	$13,000			Feasibility report scheduled for completion in fiscal year 1955. Project would furnish a municipal and industria water supply to 3 cities and an Air Force installation in central Oklahoma. It would also include provisions for flood control, irrigation, and other purposes.
Webber Falls project	do	50,000			12,000	38,000	Initiation of studies to develop plan to relieve current drought now being felt by 3,900 acres of project land.
Region 7:							
Fryingpan-Arkansas project	Colorado	958,038	876,352	41,686	40,000		Funds allotted for fiscal year 1955 will be used to provide information and service as requested by the Congress in its consideration of the project for authorization. The recheck of the present semidetailed land classification will be completed pointing toward eventual certification by the Secretary. Cost estimates and streamflow records will be revised as necessary to keep in current status. Engineering studies will be continued to provide improvement in the general plan. Funds requested for fiscal year 1956 will be used for field surveys, analysis and correlation of water and power operation studies for the most efficient use of resources, engineering review and study of alternates to find the most economical routes and crystallization of the project plan.
Granada project	Colorado-Kansas	75,000			25,000	50,000	Funds requested for fiscal year 1956 will

							resources, engineering review and study of alternates to find the most economical routes and crystallization of the project plan.
Granada project	Colorado-Kansas	75,000			25,000	50,000	Funds requested for fiscal year 1956 will be used to make feasibility studies in preparation for the Director's report. This will include refinement of hydrologic data, agricultural economic data, and engineering studies, and start preparation of payout schedules and repayment capacity.
Ingalls pumping project	Kansas	300,000			20,000	280,000	Funds requested will be used to review and revise reconnaissance data compiled for the Arkansas-Red-White report and start work on feasibility studies leading to preparation of the Director's report.
Sangre de Cristo project	Colorado	575,000			25,000	550,000	To initiate feasibility study of power installation on Arkansas River to assist in meeting greatly expanded power market in the area.
Trinidad project	do	59,633	49,633		10,000		Funds requested for fiscal year 1956 will be used to start a detailed land classification of the project area and to start revision of economic data for a feasibility type report. T is work is essential to keep up the Bureau's part of the cooperative investigation with the Corps of Engineers. The project is proposed for construction by the Corps of Engineers, and operation for flood control and irrigation by the Bureau of Reclamation.
Subtotal, project investigations		2,394,996	1,080,310	54,686	232,000	1,028,000	
Total, engineering and economic investigations.		4,180,635	2,541,851	355,784	255,000	1,028,000	
Total cost		4,180,635	2,541,851	355,784	255,000	1,028,000	
Distribution costs: Transfers, credits, service facilities, etc.				−13,762			
Total obligations				342,022	255,000		
Method of financing:							
Allocation of appropriation				341,000			
Prior year balance available				1,022			
Contributions							
Allocation of appropriation requirements					255,000		

ARKANSAS-WHITE-RED RIVER BASIN STUDY

Mr. RILEY. Was it not contemplated that these investigations would be completed this year?

Mr. BENNETT. The Arkansas-White-Red River Basin will be completed in fiscal year 1955. All the fieldwork will be done, and there remains only the processing of the final report.

Mr. PHILLIPS. 1955 or 1956?

Mr. BENNETT. In 1955, sir.

Mr. RILEY. How much are you asking to complete these reports?

Mr. BENNETT. We are asking for $23,000 to finish up the Arkansas-White-Red River Basin report.

Mr. PHILLIPS. I do not quite understand this. You are not asking for new money, then?

Mr. BENNETT. Yes, sir. The $23,000 will be new money.

Mr. RILEY. That is on page BR–6.

Mr. BENNETT. That is right.

LAWTON-DUNCAN PROJECT

Mr. RILEY. You have a project here at Lawton-Duncan, Okla., for which you request $50,000 to start investigation.

Is this largely for industrial and municipal water supply, or what is the purpose of that investigation?

Mr. BENNETT. It is multiple purpose, sir. It goes to municipal, industrial water supply, irrigation, and incidental flood control.

Mr. RILEY. Is that a purely local project? Do the local people make any contributions to it, or is it purely a Federal project?

Mr. BENNETT. It is purely a Federal project in terms of construction.

The local people would, of course, be required to return the cost to the extent that we can work it out.

Mr. RILEY. This one is purely for survey and investigations?

Mr. BENNETT. Yes, sir.

LIBERTY BOTTOMS PROJECT

Mr. RILEY. What about the Liberty Bottoms project?

Mr. BENNETT. Liberty Bottoms is irrigation, and it is in the same category as the Lawton-Duncan, initiation of an investigation.

MANGUM PROJECT

Mr. RILEY. Next is the Mangum project for which $30,000 is requested.

Mr. BENNETT. That is a study of an additional water supply for the existing W. C. Austin project.

Mr. RILEY. What is the purpose of that?

Mr. BENNETT. Irrigation, sir.

Mr. RILEY. I think in one of your reports the Austin project was shown as silting.

Is this to improve that situation?

Mr. JENNINGS. Yes, sir. The water in that area contains a very high portion of mineral. It is susceptible for irrigation only when it is diluted with other flows. It is designed to augment existing water supplies in that area, sir.

Mr. RILEY. How long has this situation been observed there in the Austin project, that is concerning the silting?

Mr. JENNINGS. I think the silting was recognized from the inception of the project, sir, that is from the time of its inception.

Mr. RILEY. Was it known at the time that we were going to have to develop these other projects in order to supplement Altus and Austin?

Mr. JENNINGS. It was recognized that the design of the reservoir capacity would be limited to a comparatively short number of years, something like 50, sir. I don't recall the exact number.

WEBBER FALLS

Mr. RILEY. We have another project here, $12,000, on the Webber Falls project. What is the purpose of that investigation?

Mr. BENNETT. Straight irrigation for a small area of 3,900 acres, sir.

FRYINGPAN-ARKANSAS

Mr. RILEY. Then you have the Fryingpan-Arkansas project. What is the purpose of that investigation?

Mr. BENNETT. That project investigation has been under way for several years. It is now before the Interior and Insular Affairs Committee of the Senate and before the Interior and Insular Affairs Committee of the House for authorization.

The money requested for fiscal year 1956 is principally to do what we term clean-up work, end up the investigations.

Mr. RILEY. Do I understand that you have more or less completed the investigation work on this project and have recommended it?

Mr. BENNETT. Yes, sir.

Mr. RILEY. $40,000 will finish it?

Mr. BENNETT. Yes, sir.

Mr. RILEY. Has any planning work been done, or has all this money been used for the report?

Mr. BENNETT. It all has been used for the report. We still would have to get authorization and then do our detail planning.

GRANADA PROJECT

Mr. RILEY. The Granada project shows $25,000.

Mr. BENNETT. The Granada project, sir, is an irrigation project, potential, of course, below John Martin Reservoir.

INGALLS PUMPING PROJECT

Mr. RILEY. What about the Ingalls pumping project? What is that?

Mr. BENNETT. It is also an irrigation project along the Arkansas River in Kansas.

SANGRE DE CRISTO PROJECT

Mr. RILEY. Next is Sangre De Cristo.

I understand this is the initial power installation?

Mr. BENNETT. Yes.

Mr. RILEY. Why is this needed? What about the power situation in that area?

Mr. BENNETT. Well, the power situation in the area now is that they are quite short of power. If the Fryingpan-Arkansas power project were constructed it would relieve that situation to some extent.

This particular investigation looks toward the possibility of utilizing the native flow of the Arkansas River and making further use of the importations proposed by the Fryingpan-Arkansas project.

TRINIDAD PROJECT

Mr. RILEY. Then we have the Trinidad project. For what purpose is that study being made?

Mr. BENNETT. The Trinidad project is a multiple-purpose development proposed by the Corps of Engineers to be constructed primarily for flood control and irrigation.

We would investigate the possibilities for use of irrigation out of that reservoir.

Mr. RILEY. Apparently the budget does not show any funds for this purpose.

Mr. BENNETT. For Trinidad, sir? We have $10,000.

Mr. RILEY. For the Corps of Engineers.

Mr. BENNETT. I think their work has been completed and their report has been submitted.

Mr. RILEY. But you do have an item in here for your investigation?

Mr. BENNETT. Yes, sir.

Mr. RILEY. Do you know what the attitude of the Corps of Engineers is and what their report would indicate?

Mr. BENNETT. My recollection is that they recommended in favor of the project.

Mr. RILEY. Do you have any plans for proceeding with the construction of this project?

Mr. BENNETT. Not at this time, sir, no.

Mr. RILEY. What about the corps? Do you know whether they have any plans?

Mr. BENNETT. I don't believe they have received authorization yet.

AUTHORIZATION

Mr. RILEY. All of these investigations are initiated in what way, Mr. Bennett?

Mr. BENNETT. Investigations are initiated in several ways. Most of these which we have just gone over were disclosed in the work under the Arkansas-White-Red Basin survey, which is of a reconnaissance nature.

These which we propose to initiate in fiscal year 1956 are some of the better ones disclosed by the reconnaissance, so it appeared that we should continue and start our detailed investigations.

They are initiated generally through the interest expressed on the part of the local people or the State organizations.

Mr. RILEY. Who authorizes it, the Secretary of the Interior?

Mr. BENNETT. Authorizes the investigation?

Mr. RILEY. Yes.

Mr. BENNETT. The Commissioner of Reclamation has authority to start the investigation.

Mr. RILEY. He can do that just on the request of local people?

Mr. BENNETT. Or on his own without such a request. He of course has to have the money for the investigation appropriated by Congress.

Mr. RILEY. You have preliminary reports, as I understand it, as you indicated just now, which would provide information which would cause you to make these investigations. Is that right?

Mr. BENNETT. That is right, sir. We have preliminary information which was obtained during the basin survey, and that information will be contained in the basin report.

Mr. RILEY. Has the criteria been changed in any way over the past 10 or 12 years to justify projects of this nature?

Mr. BENNETT. In certain respects it has. The issuance of Budget Circular A–47 in December of 1953 placed more severe criteria for measuring justification.

FRYINGPAN-ARKANSAS PROJECT

Mr. MAGNUSON. With respect to the Fryingpan-Arkansas project, did you define the nature of this project? If you did, I missed it.

Mr. BENNETT. It is a multipurpose project for the importation of water from the Colorado River Basin to the Arkansas Basin, and the utilization of some of the native flows of the Arkansas River for irrigation, municipal water and power generation.

Mr. MAGNUSON. How do you propose to get the water from the Colorado Basin?

Mr. BENNETT. By canal and tunnel.

Mr. MAGNUSON. Is it a rather considerable diversion?

Mr. BENNETT. The amount of water actually diverted from the Coloradio Basin, generally speaking, is relatively minor—about 69,000 acre-feet.

ARKANSAS-WHITE-RED RIVER BASIN SURVEY

Mr. DAVIS. On this basin survey for which $23,000 is requested to finish up the report, we had testimony from the Corps of Engineers last year that the survey had been extended at that time from 2 to 5 years and they expected to complete the report by June 30, 1955, which would be at the end of the current fiscal year. In that same testimony, General Chorpening was very definite in his statement that they would not be back, at least the corps would not be back for any money in this 1956 fiscal year, because this thing was to be wound up by June 30, 1955. What has happened?

Mr. BENNETT. I think that is substantially correct. The report is expected to be completed at the field level by the end of the fiscal year, June 30. There will still be some minor work to be done. We cannot get away from that. There will be questions raised; there will be more information that will have to be gathered in what we call the processing of the report. But the fieldwork is done and the report is now practically finished. We also are preparing, in that connection, some supplemental reports which will be completed with the $23,000, also.

Mr. DAVIS. I wonder if we are not hurrying things too much, when we had assurance this study was to be completed on June 30, 1955, and

then there is going to be some winding up to be done, supplemental reports to get out; yet we have here money requested in order to start the feasibility studies of the most worthy projects revealed by the basin report. There will be a number of agencies that will have to make studies and draw some conclusions from that comprehensive report, which has been going on for the last 5 years, won't there?

Mr. BENNETT. Yes, sir. I think each of the agencies which had participated in the preparing of that document will want to go ahead with the particular projects which they have covered in a preliminary way.

Mr. DAVIS. What does this statement mean, referring to these studies, now, that are going to be continued? It says "This increase"—referring to the increased cost of the activity—"will be more than balanced by a decrease in the requirement for basin surveys."

What does that mean? Are you telling us you ought to have more money for this year because the basin survey we have been pouring money into for 5 years is done?

Mr. BENNETT. No. The overall request, as you notice on page 4, for fiscal 1956, is less than that for 1955. The increase they are referring to there is the initiation of eight projects. It is an increase of projects investigation amounts, but the overall is a decrease because of the very substantial decrease in the amount requested for the basin survey.

Mr. DAVIS. Well what does it mean, then? Does it mean you have in mind a certain level of money for spending for studies in this area and, if you finish up this basin survey, you want us to continue at about the same rate of appropriation for studies in that area? Is that what it means?

Mr. BENNETT. I do not think that is what that particular statement means. All I think that sentence means is that the increase in the project investigations item is more than balanced by the decrease in the basin survey item. You notice the basin survey item goes down from approximately $301,000 to $23,000, which is a decrease in the basin survey; while the project investigations item goes from approximately $55,000 up to $232,000, which is the increase spoken of there. But the net effect is a decrease.

Mr. DAVIS. But I do not think they are at all comparable—do you? They are different things entirely. One of them is horses; the other is cattle. If we have less horses, does that necessarily mean we should have more cattle? That is what it amounts to, does it not?

I do not get the validity of the argument because the survey is done and we do not need to appropriate money for that, and now we can decrease that, but you will still need a little new money in the appropriation for studies in the Arkansas-White-Red River Basin for next year. Is that a valid argument?

Mr. BENNETT. I do not think that is a valid argument. I think all that sentence is trying to do is to point out that the decrease is greater than the increase. I think the amount of money was based upon judgment factors as to what we think should be the program in that basin starting in fiscal 1956.

Mr. DAVIS. These projects, then, that are included in this figure of $232,000 are, I should say, with the exception of Norman and the Fryingpan projects, which appear to be in a different category, projects

which have been revealed by the basin report as being at least among the most worthy in this basin. Is that correct?

Mr. BENNETT. Yes, with the exception of the Mangum project, which has been under consideration for quite a while.

Mr. DAVIS. There had been some investigation money spent on that previously, then, had there?

Mr. BENNETT. Yes, sir.

Mr. DAVIS. Well I guess that gets me back to the question I asked earlier as to whether this does not represent a jumping of the gun a bit. Here we had the Corps of Engineers, the Federal Power Commission, the Secretary of the Interior's Office, the Southwest Power Administration, the Bureau of Land Management, the Bureau of Reclamation, the Geological Survey, the Bureau of Mines, the National Park Service, the Fish and Wildlife Service, the Department of Agriculture, and I believe several State agencies, involved in conducting this survey, which is just being buttoned up and you still need a little more money to put the finishing touches on it; but before these people—at least it looks that way to me—have really had a chance to look this thing through and say "This ought to be an overall program in this basin as a result of this overall survey we have made," here comes the Bureau of Reclamation with a request to get started on a number of investigations with respect to a number of the projects that have been a part of this overall survey. Is not that true?

Mr. BENNETT. Yes, sir, that is true. I think the basin report, when it is put together, will serve as an inventory, actually, of what the potentials of that basin are. You are perfectly correct; all of the agencies cooperated and the States cooperated and I think they know pretty well what is in that document now. So I do not see, actually, what would be gained by that document actually being printed and being in the hands of the public, if you will. It does not propose any action as such; it does not propose a basis for authorization or construction itself; it is a guide to the resources development. And these particular proposals we think now should be investigated in detail, tying into that overall guide. To me, that is the main purpose of the basin report.

Mr. DAVIS. Well, to whom is the report to be made?

Mr. BENNETT. Well, the report was authorized initially, as I remember, by the Congress. I do not recall whether it was actually in the flood control act, or whether it was a committee resolution. Then it was brought together as a joint effort of all of the agencies through a directive of the President. So I assume the ultimate report will find its way to Congress through the Bureau of the Budget as an information type of document, rather than a type of document requesting or proposing immediate authorization or construction of the projects contained therein.

Mr. DAVIS. Well, there really is not too much justification for spending that amount of money—and it did run into millions—if when it gets all done somebody is not going to take hold of it and decide what it means. It does not appear to me that Congress is justified in providing the funds for a survey of this kind, with coordination of a large number of agencies, if after it is all done it is going to be laid on the table and each individual agency that participated is going to say "This is what it means to me; this part of it I can use for mine; I am

ready to go; I am going to start and come to Congress and get some money to go to work on it." That is the way it appears to me, and that the feasibility studies on individual projects at this time, when this survey, an overall survey like this, has not really been submitted to somebody for some decisions to be made on the basis of it, appears to me to be premature.

Mr. BENNETT. I am just trying to visualize what decisions might be made on the basis of that report.

Mr. DAVIS. I would think the decision that would have to be made is what the Federal Government is going to do to assist in the overall development of the resources of this area. And I do not think that those decisions can be made by individual agencies of the Government.

Mr. BENNETT. Well, I am not sure that they can be made on the basis of that particular document, either, it being principally an inventory showing the amount of resources and the opportunities of developing those resources.

Mr. PHILLIPS. I am not clear about this inventory business and I have been listening with a great deal of interest. Do you mean to say we have spent a great deal of money—and, by the way, how much money have we spent on this total survey?

Mr. BENNETT. I cannot give you the total. We have spent in Reclamation, up to June 30, 1954, $1,461,541.

Mr. PHILLIPS. In Reclamation?

Mr. BENNETT. In Reclamation.

Mr. PHILLIPS. If I am not mistaken, this has been sort of a joint project. What other Federal agencies are engaged in this project? I have a list here which Mr. Davis has just handed me. This is in part I of the Hearings of the Subcommittee on Appropriations for Fiscal 1955, Civil Functions, Department of the Army, and on page 125 it shows the Corps of Engineers had spent up to that time $470,000.

Mr. DAVIS. That is just 1 year.

Mr. PHILLIPS. I beg your pardon; I should have read the subhead "Funds Proposed in the 1955 Budget for Certain Surveys—Arkansas-White-Red River Basin Survey." It shows the Corps of Engineers expected to spend, or asked for—whichever it was—$470,000; Federal Power Commission, $25,000; Interior Department, through the Office of the Secretary, $18,000; through the Southwestern Power Administration, $15,000; through the Bureau of Land Management, $5,000; through the Bureau of Reclamation, $285,000; through the Geological Survey, $38,000; through the Bureau of Mines, $187,288; through the National Park Service, $14,251, and through the Fish and Wildlife Service, $72,000 and, through the Department of Agriculture, on the basis of flood prevention, $200,000—making a total for the current year in all of $1,329,539. Now you have added to that another million which you had, give or take $9,000, and that brings it up, we will say, to $2,320,000.

Mr. BENNETT. Actually, I think you will find the total expenditures are quite a bit more than that.

Mr. PHILLIPS. Do you think they would go to $10 million?

Mr. BENNETT. Oh, it is difficult to say, not having any information as to what Agriculture and the Corps have spent.

Mr. PHILLIPS. Well, will you take as a moderate estimate $5 million?

Mr. BENNETT. Oh, I am sure it has gone that much.

Mr. PHILLIPS. Do you think, then, that is a fairly expensive inventory?

Mr. BENNETT. I do, sir. I have a general statement here on the AWR program, if you care to have it for the record, but I would like to read you one paragraph out of that general statement.

Mr. PHILLIPS. That is for the chairman to say.

Mr. BENNETT. It says:

In the final analysis, the AWR report will comprise a good general description of existing conditions in the basins; it will present an analysis of the potential needs of the basins; and, it will include an inventory of potential projects that could help in satisfying those needs. The report will not recommend authorization of any project; it will not consider the appropriateness of presently authorized or existing projects in the plan; and it will not in any way be an integrated comprehensive plan of development for the area as a whole. Part II of the report will consist of some 16 separate sections each of which will cover rather thoroughly the needs and potentialities of particular functions such as navigation, irrigation, flood control, and so forth. Part I of the report will comprise a general summary statement of all the information included in the various sections of part II.

Mr. PHILLIPS. You see, you are raising this very serious question in my mind; that is, we will have spent more than $5 million and now you say we are going to get a report that in effect has no particular value to us; it is just an inventory of that area which could have been secured, I suggest to you, for 10 percent of the cost we expect to spend on it.

I am extremely interested, because I am wondering if this is what happens in all of our areas. Yesterday, when the corps was here, we kept talking about Senate Document 191. No; it was when the Bureau of Reclamation was here. We kept talking about Senate Document 191, and that is sort of a Bible for all of these projects and yet it was referred to, quoting from memory, as a window-glass document, and now along comes what you call an inventory document. I do not know how much we have spent for that; but the idea in my mind is I do not think we are getting anything on which this Congress could justify action. And you raise a very serious question in my mind.

Let us take some of these specific projects and let us see.

I would like to suggest, Mr. Chairman, if we could get for the record this year—I think the clerk probably can get it for us—a table similar to the one which appears on page 125 of the document I have just cited, which is part I, civil functions hearing of last year, except I would like you to show what you expect to spend in fiscal 1956, and, in addition to that, I would like to have what they have spent up to date, so that we can see just what we are paying for this inventory.

FRYINGPAN-ARKANSAS PROJECT

Now here is a curious thing. You testified you had already reported—I think you said you reported favorably, but that is not important—in region 7 on the Fryingpan-Arkansas project; yet you ask for $40,000 to provide information and surveys in the consideration of the project for authorization. I am reading from the table at the top of page 7.

Mr. BENNETT. That is fiscal year 1955 funds. On page 7 it shows funds allowed for fiscal year 1955 will be used to provide information——

Mr. PHILLIPS. Now, then—

Funds requested for fiscal year 1956 will be used for field surveys, analysis and correlation of water and power operation studies for the most efficient use of resources, engineering review and study of alternates to find the most economical routes and crystallization of the project plan.

We voted on this, you remember, on the floor—we voted on this bill in about May a year ago, wasn't it?

Mr. BENNETT. Yes.

Mr. PHILLIPS. In other words, you had made a report, had you not, that the funds were to be used to provide information and surveys in the consideration of the projects for authorization on the basis of this statement, had you not? Now is it customary for the Bureau to recommend projects before they have concluded the survey to provide information for consideration of the project for authorization?

Mr. BENNETT. Well, it is our custom to present a report when we think we have obtained sufficient information to be reasonably sure of the feasibility.

Mr. PHILLIPS. Then, to put it in simple language, you either have made your report and, therefore, you ought not to ask for $40,000; or, putting it even in simpler language, you ought not to get it; or else you ought to get $40,000, but you should not have made a report. Now which is correct?

Mr. BENNETT. That is a difficult question.

Mr. PHILLIPS. One or the other has to be correct, does it not?

Mr. BENNETT. Not necessarily, no. The $40,000 which we propose for fiscal 1956 goes only to a further refinement of the plan. I think the information which we have and which we have reported upon is sufficient for that purpose.

Mr. PHILLIPS. All right. You see the point in my mind. I mean are there any other projects in here that you have reported favorably on and for which money is being asked in next year's budget to carry on the investigation?

Mr. BENNETT. No, sir. These other projects in this particular schedule for which we are requesting money for fiscal 1956 we do not have reports on.

Mr. PHILLIPS. Have you any other projects? The curious thing about this, as you well know, Mr. Bennett, better than I do, is that Congress turned this down. When it came to the actual vote on the floor, Congress did not even adopt the rule, let alone vote on the bill itself. Is it your custom to keep on spending $40,000 on projects that Congress has refused?

Mr. BENNETT. Well the vote last year——

Mr. PHILLIPS. I am right, am I not, that it was this project?

Mr. BENNETT. Yes, sir, it was this project. And the vote was not upon the bill which had been reported out by the committee, but it was on whether they should take up the bill before the rule was passed upon.

Mr. PHILLIPS. That is a very fine point; because it is very rare that the Congress is so sure it is not going to vote for a bill that it turns down the rule and stops the discussion right there.

Mr. BENNETT. The fact that the bill was turned down at that time certainly gives us pause for question.

Mr. PHILLIPS. But not pause enough to stop asking for money.

Mr. BENNETT. No, sir; because we did know efforts would be made again, and we had to service those efforts.

LIBERTY BOTTOMS AND LAWTON-DUNCAN PROJECTS

Mr. PHILLIPS. Now on Liberty bottoms and Lawton-Duncan, you say "initiation and completion of investigation." That means you are going to do it in 1 year?

Mr. BENNETT. Yes, sir.

Mr. PHILLIPS. And for Liberty bottoms you ask $20,000. Who asked for that $20,000; who asked you to make an investigation of the Liberty bottoms project?

Mr. BENNETT. That is one of the investigations being supported by the Water Resources Division of the State Planning Board of Oklahoma.

LOCAL SHARE OF INVESTIGATION COSTS

Mr. PHILLIPS. If I remember that law correctly, they pay one-half of the investigation; is that right?

Mr. BENNETT. No, sir. They have not made an official request under the law.

Mr. PHILLIPS. Do not you get into another technicality here? They make a request, but, if they made an official request, they would have to pay half of the money; so you do not require them to make an official request and then Uncle Sam has to pay all of it.

Mr. BENNETT. I am frank to admit that particular reclamation law is one big headache. When is a request a request, and when is it not a request? It is very difficult to separate. We have investigations that we have had under way for 3 or 4 years that are practically completed, when we will get a resolution by a local district saying "We request you to do this." Does that mean, then, to go back and pay 50 percent of the cost already spent and the work practically done? We have that type of request.

Mr. PHILLIPS. Do you charge them one-half from then on?

Mr. BENNETT. No, sir, we have not done so. We have considered that type of request as an endorsement of what we have been doing. We have used the general principle that when a request comes in, if it requires us to put that investigation in our program sooner, it then becomes a request under the requirement of the 50 percent contribution. We do not know of any other really practical way in which we can administer that requirement.

Mr. PHILLIPS. Mr. Chairman, I am new on this subcommittee. Are you aware of the fact that the congressional intent of having the local group or the local community pay one-half of the investigation cost when they ask for an investigation has not been recognized by the Bureau? Are you aware of that?

Mr. RILEY. I am not as familiar with it as I should be; because I think it is perfectly natural that the local communities would initiate these things.

Mr. PHILLIPS. Yes. I think that is what Congress had in mind when they said they should then pay one-half of the cost. In lots of other things, in the housing projects for example, we charge the planning up to the local community and then, when the housing is built, it is included.

Mr. BENNETT. Of course you must remember that, on reclamation projects, when they come to authorization and construction, the entire

cost of investigation is included in the total cost of the project which then forms the basis for negotiation of the repayment contract.

Mr. PHILLIPS. Including all of the investigation?

Mr. BENNETT. Yes, sir.

Mr. PHILLIPS. And then the Bureau and Congress together, jointly and severally, figure up the things which can be put in as nonreimbursable parts of the project, so it more than takes care of all of the rest of it.

Mr. BENNETT. In some instances, yes; in others, no.

Mr. PHILLIPS. I have one here that I meant to ask you about. Are not you getting over into Ezra Benson's Department in this Liberty Bottoms project—

initiation and completion of investigation of feasibility of relieving serious drought now seriously curtailing crop production on 8,000 acres of land.

Mr. BENNETT. No. That is an investigation of a potential irrigation project.

MANGUM PROJECT

Mr. PHILLIPS. In connection with Mangum, in reply to Mr. Davis, you said that was a continuation of an investigation you had been carrying on. Was that another technicality? Was a previous investigation made of the whole W. C. Austin project?

Mr. BENNETT. No; we had an investigation——

Mr. PHILLIPS. Were you actually working on Mangum?

Mr. BENNETT. Yes, we were actually working on Mangum back in about 1941.

Mr. PHILLIPS. Well isn't it part of a smaller dam to store water for a big project, or does it stand on its own feet?

Mr. BENNETT. No; it is a separate structure and supplemental to the Altus Reservoir.

Mr. DAVIS. You would require it even if you did not have this other project under way.

Mr. BENNETT. Yes.

Mr. PHILLIPS. I thought the W. C. Austin project was a fairly large project.

Mr. BENNETT. It is, yes.

Mr. PHILLIPS. And this Mangum is not a part of that big project?

Mr. BENNETT. No, sir.

Mr. PHILLIPS.. It is a separate project?

Mr. BENNETT. Yes, sir.

Mr. PHILLIPS. Then your statement on page 6 is not entirely clear—

geological exploration at Mangum Reservoir site to determine feasibility of creating storage reservoir to provide supplemental water for the existing W. C. Austin project to replace storage in Altus Reservoir which is rapidly being lost by sedimentation.

Mr. BENNETT. Maybe we did not understand your question.

Mr. PHILLIPS. You testified just a moment ago about Mangum that it was not a part of what I would call the broad W. C. Austin project.

Mr. BENNETT. Oh, no; it is supplemental water for the same lands. There is no question of that.

Mr. PHILLIPS. But you would have to have the Mangum Reservoir even if there were no other W. C. Austin projects?

Mr. BENNETT. No; if there were no other W. C. Austin projects, there would be no reclamation for the Mangum Reservoir. It is to replace that.

Mr. PHILLIPS. Then I think in my simple mind that is part of the whole project. But you are investigating Mangum as a separate request and a separate investigation, and not as part of the W. C. Austin investigation which was started some time ago.

Mr. BENNETT. W. C. Austin is constructed, and is not under investigation.

Mr. PHILLIPS. I come back to what I started out on, because I am extremely curious about the cost of this inventory. When you get over into inventories, you are getting into something that I understand professionally.

ESTIMATED COST OF BASIN SURVEY

How much did you estimate when you started out on this deal it was going to cost? How much did you estimate the Bureau was going to have to spend in an investigation of the AWR Basin survey? You have now estimated that you will have to spend $1,040,000. Does that include next year?

Mr. BENNETT. No. The total estimated cost, column 3, page 6, is $1,785,000.

Mr. PHILLIPS. $1,785,000 is what you are estimating now. Would you mind telling me how much you estimated it when you first justified it before the legislative committee?

Mr. BENNETT. I do not have that figure.

Mr. PHILLIPS. Could you find it somewhere in your own documents?

Mr. BENNETT. Yes. We would have to go back into the old justifications.

Mr. PHILLIPS. Will you put it in the record at this point?

Mr. BENNETT. Yes, sir.

(The matter referred to follows:)

ESTIMATED COST OF ARKANSAS-WHITE-RED BASIN SURVEY

At the time the Arkansas-White and Red Basin Inter-Agency Committee was established in 1950 in accordance with Public Law 516, 81st Congress, to coordinate the planning activities of all agencies concerned with this basin development, the total estimated cost of the Bureau of Reclamation's portion of the work was $1,952,000, including $236,348 of investigation costs incurred prior to establishment of this committee. The current estimate of the total cost of the Bureau's participation in the AWR Basin report is $1,785,639 including the $236,348 referred to above. This is a decrease of $166,361.

Mr. PHILLIPS. Have you ever gone before the committee again and said to them "Gentlemen, we were wrong in our original estimate; we are going to have about $2 million before we get through with this?"

Mr. BENNETT. Every year we have gone before the committee——

Mr. PHILLIPS. The legislative committee?

Mr. BENNETT. No, the Appropriations Committee.

Mr. MAGNUSON. Has there been an increase in the estimated cost since the authorization?

Mr. BENNETT. I just do not know. I will have to go back and check that.

Mr. PHILLIPS. On Liberty Bottoms, Mangum and Lawton-Duncan, have you made all the preliminary reports of investigation up to date?

Mr. BENNETT. We have made no reports. The information which we have obtained will be included in the AWR report.

Mr. PHILLIPS. What do those reports show up to date as to the economy of the project, or feasibility?

Mr. JENNINGS. They appear to be the best of the projects investigated and shown in this inventory.

Mr. PHILLIPS. You mean those three are the best projects in the whole Arkansas-White-Red River Basin?

Mr. JENNINGS. Involving water use and irrigation, sir.

POWER DEMANDS

Mr. PHILLIPS. Now you have a generality down here on the Sangre de Cristo project, and I do not like generalities.

You say—

to initiate feasibility study of power installation on Arkansas River to assist in meeting greatly expanded power market in the area.

Of course my contention is, Mr. Bennett, you ought to give us the figures for the power you have and the demand you have and let us determine whether that is an expanded power requirement that justifies us putting up money. I do not like these generalities, just saying "We need more power; just give us $575,000." Do you think you could do that?

Mr. BENNETT. We could supply you with figures as to the present power in the area and as to the estimates of future needs.

Mr. PHILLIPS. I mean the demands you have; not what you are looking into a crystal ball and seeing might be justified 20 years from now; but the actual figures to indicate you are short of power.

Mr. BENNETT. The actual present demands; we can show those, and show the market studies of the increased demands.

Mr. PHILLIPS. I mean the present power and the present demands. That is what you are getting?

Mr. BENNETT. Yes.

Mr. PHILLIPS. You could give me that—the present power and the present demands?

Mr. BENNETT. Yes.

Mr. PHILLIPS. Do not get me what somebody thinks the market study will be for the next generation, but get it for now. Then we can tell whether to give you the money now, or not.

(The matter referred to follows:)

ARKANSAS VALLEY—AREA D

Power market areas 32B, C, E, and D future capacity requirements

[1,000 kilowatts]

	1952	1960	1965	1970	1975
CAPACITY REQUIREMENTS					
1. Peak demand	145	245	318	384	455
2. Reserve requirements	22	38	47	57	67
3. Total capacity required	177	283	365	441	522
CAPACITY AVAILABLE					
4. Existing fuel-electric capacity, Dec. 31, 1952	199	199	199	199	199
5. Less estimated retirements	------	30	73	91	98
6. Net	199	169	126	108	101
7. Scheduled additions to fuel electric capacity by 1960	------	71	71	71	71
8. Existing hydroelectric capacity, Dec. 31, 1952	------	4	4	4	4
9. Scheduled additions to hydro capacity by 1960	------	0	0	0	0
10. Total capacity available	199	244	201	183	176
ADDITIONAL CAPACITY REQUIRED					
11. Requirements minus supply	−22	39	164	258	346

NOTE.—Does not include Denver area for which the Public Service of Colorado will require a large part of hydrogeneration on the Arkansas River. Data from pt. II, sec. 8, Arkansas, White, and Red River Report, Hydroelectric Power Development and Utilities; 1955 not available.

A-W-R BASIN SURVEY

Mr. DAVIS. Mr. Culp, our executive clerk, has dug up the River and Harbor and Flood Control Act of 1946 and has also furnished the hearings which took place during the first session of the 83d Congress on the Department of the Interior appropriation bill, in which was set forth a letter from the President of the United States to the then Secretary of the Interior, dated May 19, 1950, which was in effect an Executive order setting up this joint survey in this area. I would like to ask that he insert brief portions of the act and of the Executive order which relate to this matter of the use of the information to be obtained.

(The matter referred to is as follows:)

EXTRACT FROM TITLE II, SECTION 204, OF THE FLOOD CONTROL ACT OF 1950

Arkansas, White and Red River Basins, Arkansas, Louisiana, Oklahoma, Texas, New Mexico, Colorado, Kansas, and Missouri, with a view to developing comprehensive, integrated plans of improvement for navigation, flood control, domestic and municipal water supplies, reclamation and irrigation, development and utilization of hydroelectric power, conservation of soil, forest and fish and wildlife resources, and other beneficial development and utilization of water resources including such consideration of recreation uses, salinity and sediment control, and pollution abatement as may be provided for under Federal policies and procedures, all to be coordinated with the Department of the Interior, the Department of Agriculture, the Federal Power Commission, other appropriate Federal agencies and with the States, as required by existing law: *Provided*, That Federal projects now constructed and in operation, under construction, authorized for construction, or projects that may be hereafter authorized substantially in accordance with reports currently before or that may hereafter come before the Congress, if in compliance with the first section of an Act entitled "An Act authorizing the construction of certain public works on rivers and harbors for flood control, and other purposes," approved December 22, 1944 (58 Stat. 887), shall not be altered, changed, restricted, delayed, retarded, or otherwise impeded or interfered with by reason of this paragraph.

EXTRACT FROM PRESIDENT TRUMAN'S LETTER OF MAY 19, 1950, TO THE HONORABLE OSCAR L. CHAPMAN

Because of the language contained in H. R. 5472, it seems desirable that the Department of the Army be designated as the chairman agency. Each agency would, of course, make its contribution in accordance with its responsibilities under existing laws. The final product of such a joint interagency investigation should be a single comprehensive report embracing the coordinated views of all agencies concerned.

STATES INCLUDED IN RECLAMATION ACT

Mr. RILEY. In connection with that, I want to clear up a matter that Mr. Phillips asked about a while ago, in regard to local interests paying 50 percent of the cost of these investigations, and I read in the law that—

Provided, That none of this appropriation shall be used for more than one-half of the cost of an investigation requested by a State, municipality, or other interests.

I judge from that if the Government initiates it, you do not have to put up the 50 percent.

Mr. PHILLIPS. That is right.

Mr. RILEY. And apparently it has been the custom for the Government to initiate the most of these projects. And I will follow that with this question: Do I understand that only the 17 Western States are eligible for these reclamation projects?

Mr. BENNETT. Yes, sir.

Mr. RILEY. That law has never been changed?

Mr. BENNETT. It has never been changed to include more than the 17 States. I might say, to supplement the answer to that question, that we did have for 2 straight years appropriations to investigate projects in Arkansas, and that was done. But that was only on an annual basis.

Mr. PHILLIPS. Was that 17 States area set up in the original act; was it set up in the first Reclamation Act?

Mr. BENNETT. No; the first act excluded, as I remember, Texas. Texas was added.

Mr. PHILLIPS. Was Oklahoma one of the 17 Western States?

Mr. BENNETT. Yes, sir.

Mr. PHILLIPS. Kansas?

Mr. BENNETT. Yes, sir. The States are named in the Reclamation Act, as I remember.

OPERATION AND MAINTENANCE, BUREAU OF RECLAMATION

W. C. AUSTIN PROJECT, OKLAHOMA

Mr. RILEY. We have one more item, that is an operation and maintenance item for the W. C. Austin project in Oklahoma.

I understand you are asking for $8,170 for the operation and maintenance of this multiple-purpose ram. Without objection, We will insert pages 558 through 560 in the record.

(The matter referred to follows:)

W. C. Austin Project, Oklahoma

PROJECT DATA

Authorization

Authorized by the President on February 13, 1941, as the Altus project. The name was changed to W. C. Austin project by act of Congress on May 16, 1947 (Public Law 69, 70th Cong.).

Location

The project lies in parts of Jackson, Greer, and Kiowa Counties on the North Fork of Red River in southwestern Oklahoma. Most of the irrigable lands are within a 15-mile radius of Altus, Okla.

Description

The scheme of development includes a multipurpose dam and reservoir for irrigation storage and flood control with an active storage of 142,900 acre-feet and 270 miles of canals and laterals and 26 miles of drainage system to serve 47,810 acres of land in the semiarid area within a 15-mile radius of Altus, Okla. A 3.2 mile pressure pipeline from the canal system furnishes a municipal water supply to the city of Altus.

Status

Construction on all features completed and project is in full operation. Total construction cost $12,673,706 (total obligations, $12,673,706).

The care, operation, and maintenance of the project, Altus Dam and Reservoir excepted, was assumed by the Lugert-Altus Irrigation District on October 1, 1952.

Repayment

Provisions for repayment of irrigation's portion of the construction cost representing approximately 26 percent of the total project cost, is covered by a contract with the Lugert-Altus Irrigation District. That portion of the remaining cost normally considered reimbursable was financed by appropriations subsequently termed nonreimbursable by the Congress.

History of project development

Initial date: Planning, 1902; advance planning, 1941; construction, 1941.

Schedule of development

	Initial operation		Through fiscal year 1954	Fiscal year 1955	Fiscal year 1956	Ultimate
	Date	Number				
Irrigation system: Irrigable acreage for service (full)	------	1,300	47,810	47,810	47,810	47,810
Total	1946	1,300	47,810	47,810	47,810	47,810

ESTIMATE FOR OPERATION AND MAINTENANCE

Summarized financial data

Total, fiscal year 1954		$10,178
Fiscal year 1955:		
Allotment	$1,930	
Funds advanced by water users	6,070	
Total obligations 1955		8,000
Fiscal year 1956:		
Allotment	2,000	
Funds advanced by water users	6,170	
Total obligations 1956		8,170

Work proposed 1956

Multipurpose facilities	Program 1956	Increase (+) or decrease (-) from 1955
Storage system: For continued operation and maintenance of Altus Dam and Reservoir	$8,170	+$170
Total obligations	8,170	+170

Mr. JENNINGS. The total cost of operation for the Altus Reservoir is $8,170, $2,000 of which is allocated to flood control. And that is what our request is for. The remaining $6,170 is advanced by the water users for maintenance and operation.

Mr. RILEY. The water users are advancing the $6,170?

Mr. JENNINGS. Yes, sir.

Mr. RILEY. And the Government is paying $2,000?

Mr. JENNINGS. Which is the allocation for flood control.

TUESDAY, MAY 10, 1955.

UPPER MISSISSIPPI BASIN

WITNESSES

BRIG. GEN. E. C. ITSCHNER, ASSISTANT CHIEF OF ENGINEERS FOR CIVIL WORKS
COL. ALFRED D. STARBIRD, ASSISTANT CHIEF OF CIVIL WORKS FOR FLOOD CONTROL
COL. J. U. ALLEN, ASSISTANT CHIEF OF CIVIL WORKS FOR RIVERS AND HARBORS
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Mr. RILEY. The committee will come to order.

This afternoon we will consider the justifications for the upper Mississippi Basin. We will insert into the record the summary estimate and the table showing status of funds.

(The matter referred to follows:)

Upper Mississippi Basin—Budget estimate, fiscal year 1956, Corps of Engineers

Appropriation:	
General investigations	$96,700
Advance engineering and design	337,000
Construction	15,105,000
Operation and maintenance	8,401,000
Total	23,939,700

Upper Mississippi Basin

Project	June 30, 1954		Mar. 31, 1955		June 30, 1955 (estimated)	
	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance	Unobligated balance	Unexpended balance
Navigation:						
Mississippi River, rectification of damages	$9,092	$9,092	$11,891	$11,891	0	0
Lock 19 at Keokuk	0	2,316,983	[1] 280,511	[1] 2,501,563	[1] $35,600	[1] $769,400
St. Anthony Falls	0	16,366	[2] 394,555	[2] 524,943	0	[2] 148,400
Flood control:						
Beardstown, Ill.	0	0	20,474	299,089	5,000	20,000
Clear Creek Drainage and Levee District	−96,804	−94,854	[3] 32,393	[3] 124,711	[3] 3,100	[3] 5,000
Degonia and Fountain Bluff	−63,342	366,470	[4] 73,036	[4] 232,265	[4] 0	[4] 0
East St. Louis and vicinity	511,679	651,264	[5] 248,448	[5] 742,380	[6] 125,000	[6] 160,000
Grand Tower	−305,547	227,345	[7] 51,011	[7] 124,074	[7] 8,900	[7] 43,900
Preston Drainage and Levee District	−106,056	−70,790	11,714	52,456	5,000	40,000
Wilson, Wenkel and Prairie du Pont	237,462	275,418	[8] 53,068	[8] 85,108	[8] 0	[8] 0
Wood River Drainage and Levee District	−78,947	−33,927	[9] 90,881	[9] 252,433	[9] 16,900	[9] 16,900
Coralville Reservoir	434,651	517,862	1,111,982	1,373,566	[10] 0	[10] 578,800
Cape Girardeau, Mo.	0	0	0	0	0	0
Perry County Drainage and Levee District	20,295	51,853	65,132	83,229	13,300	38,300

[1] Excludes $1,240,000 loaned to other projects.
[2] Includes $772,700 loaned to project.
[3] Includes $102,000 loaned to project.
[4] Includes $552,400 loaned to project.
[5] Excludes $15,000 loaned to other projects.
[6] Excludes $15,000 loaned to other projects and $25,000 available for loan.
[7] Includes $232,100 loaned to project.
[8] Includes $28,000 loaned to project.
[9] Includes $483,600 loaned to project.
[10] Excludes $200,000 reported as available for loan.

General Statement

Colonel Starbird. The Mississippi River rises in the vicinity of Lake Itasca in northern Minnesota and flows in a general southerly direction about 2,350 miles to the Gulf of Mexico. The upper Mississippi River Basin, above the mouth of the Ohio River, covers some 188,000 square miles in the States of Minnesota, South Dakota, Wisconsin, Iowa, Illinois, and Missouri, exclusive of the Missouri River Basin.

Since early days, the Mississippi River and its principal tributaries have served as important water transportation routes. However, the river required extensive improvement prior to effective use for modern navigation. A major portion of this improvement has been accomplished.

The basin along the main stem and many of its tributaries are subject to serious flooding. Many flood control improvements have been constructed to protect cities, towns, and agricultural areas. A large amount of additional protection is required.

Most of the basin's hydroelectric power potential has been developed by private interests.

Navigation

The basin contains some 1,200 miles of improved 9-foot navigation channel, which is used extensively by modern barge traffic. Commerce during 1953 amounted to over 50 million tons and over 8 bil-

Work proposed 1956

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[10] Excludes $200,000 reported as available for loan.

General Statement

Colonel Starbird. The Mississippi River rises in the vicinity of Lake Itasca in northern Minnesota and flows in a general southerly direction about 2,350 miles to the Gulf of Mexico. The upper Mississippi River Basin, above the mouth of the Ohio River, covers some 188,000 square miles in the States of Minnesota, South Dakota, Wisconsin, Iowa, Illinois, and Missouri, exclusive of the Missouri River Basin.

Since early days, the Mississippi River and its principal tributaries have served as important water transportation routes. However, the river required extensive improvement prior to effective use for modern navigation. A major portion of this improvement has been accomplished.

The basin along the main stem and many of its tributaries are subject to serious flooding. Many flood control improvements have been constructed to protect cities, towns, and agricultural areas. A large amount of additional protection is required.

Most of the basin's hydroelectric power potential has been developed by private interests.

NAVIGATION

The basin contains some 1,200 miles of improved 9-foot navigation channel, which is used extensively by modern barge traffic. Commerce during 1953 amounted to over 50 million tons and over 8 bil-

lion ton-miles. The Mississippi River proper has been improved to provide a 9-foot channel below Minneapolis, Minn., and its important tributary, the Illinois Waterway, has been improved to provide such a channel for its entire length.

Navigation improvements on the Mississippi River, above the mouth of the Missouri, and on the Illinois Waterway, include locks and dams at 33 locations. Below the Missouri River, the 9-foot Mississippi River channel has been provided and is maintained by dredging and regulating works.

Numerous commercial and small-boat harbors have been authorized by Congress along the 9-foot channels. A few have been constructed.

The 9-foot navigation channel on the Mississippi and Illinois Rivers is fully operational, and is in wide use. However, certain important construction items remain to be accomplished. These include the completion of the St. Anthony Falls extension at Minneapolis, Minn., and new lock No. 19 at Keokuk, Iowa, both on the Mississippi River. In addition, there are lock guide wall extensions, mooring levees, and channel improvements which remain to be constructed. The Chain of Rocks Canal and locks which bypass a formerly obstructive reach of river above St. Louis, Mo., were placed in operation recently. Six reservoirs at the headwaters of the Mississippi River above Minneapolis have been completed and are being operated for the purpose of increasing low-navigation flows. These reservoirs produce minor flood-control benefits. In addition, minor navigation channel improvements in the lower portions of a few tributaries have been completed.

In addition to the above mentioned major structures that remain to be completed, there are a number of authorized harbors to be constructed. Completion of open river regulating works below the mouth of the Missouri River is also required.

The St. Anthony Falls extension is under construction at a total estimated cost of $29,900,000 and is scheduled for completion in fiscal year 1963. The new Keokuk lock under construction at an estimated cost of $13,900,000 is scheduled for completion in fiscal year 1957

FLOOD CONTROL

The authorized flood control plan for the basin consists of reservoirs on the tributaries and local protection works, primarily levees and flood walls, on both the Mississippi River and its tributaries. There are 13 authorized reservoirs, and 90 authorized local protection projects.

Three reservoirs have been completed, 1 on the Minnesota River and 2 on Farm Creek, a tributary of the Illinois River. The levee construction program is farther advanced, and levees and flood walls provide substantial protection to many low-lying agricultural and urban areas both along the Mississippi River and the Illinois River.

The Coralville Reservoir on the Iowa River is under construction at an estimated cost of $18,520,000, and is scheduled for completion in fiscal year 1958. Ten local protection projects with a total estimated cost of $75,500,000 are under construction, and are all scheduled for completion during the next 6 years.

The amount of $750,000 is included in the fiscal year 1956 budget for initiation of construction of local protective works for the city of Cape Girardeau, Mo., with a total estimated cost of $4,540,000. In addition, the fiscal year 1956 budget includes funds for continuation of planning for the Carlyle Reservoir on Kaskaskia River, for initiation of planning for the Bear Creek Reservoir at Hannibal, Mo., and for initiation of planning on the following local protection projects: Alton, Ill.; Sabula, Iowa; Muscatine, Iowa; and Canton, Mo.

CONCLUSION

A large portion of the upper Mississippi Basin consists of highly developed and productive agricultural areas. A large amount of industry is located in the major cities and towns. The streams throughout the basin and the numerous lakes in the northern portion provide an abundance of natural resources for recreation. Navigation and flood-control improvements have contributed materially to the economy of the area.

The improved navigation channels of the Mississippi and Illinois Rivers connect the Nation's interior with the Great Lakes and the Gulf of Mexico. Traffic on these channels has been growing steadily and greatly exceeds early estimates and expectations. The improved navigation channels provide low-cost transportation for agricultural products and for raw materials for industrial and domestic use with resulting major benefits to the entire basin.

Flood-control projects eliminate enormous economic losses and enhance the safety and security of protected areas. Removal of the menace of frequent flooding permits rural and urban areas to continue to grow and develop. Reservoirs, even though constructed primarily for flood control, are also beneficial to navigation in that they provide an improved degree of regulation to both high and low river flows. They also provide water for water-supply purposes, for pollution abatement and for conservation.

General Investigations, Corps of Engineers

Mr. Riley. We will take up the first item, then, general investigations.

I will ask that pages 1 and 2 be inserted in the record without objection.

(The matter referred to follows:)

Upper Mississippi Basin

JUSTIFICATION OF ESTIMATE—GENERAL INVESTIGATIONS, FISCAL YEAR 1956

1. ***Examinations and surveys.***

(*a*) *Navigation studies.*—The amount of $1,000 is requested for completion of one study in the upper Mississippi Basin during fiscal year 1956.

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Illinois: Illinois Waterway, Ill. and Ind., duplicate locks	$37,000	$36,000	$1,000	0
Total	37,000	36,000	1,000	0

(*b*) *Flood-control studies.*—The amount of $95,700 is requested for prosecution of 8 studies in the upper Mississippi Basin during fiscal year 1956. This amount will permit completion of 4 reports and progress on 4 others.

The tentative allocations by studies follow:

Study	Total estimated Federal cost	Allocations prior to fiscal year 1956	Tentative allocation, fiscal year 1956	Additional to complete after fiscal year 1956
Illinois:				
Pecatonica River, Ill. and Wis	$41,200	$25,500	$15,700	0
Upper Kankakee, Ill. and Ind	124,000	26,900	15,000	$82,100
Iowa:				
Des Moines River (interim)	148,000	144,000	4,000	0
Mississippi River above mouth of Ohio River (urban areas)	184,000	14,200	16,200	153,600
Minnesota: Minnesota River (main stem)	50,000	12,200	10,000	27,800
Missouri:				
Salt River	53,000	38,200	14,800	0
Ste. Genevieve and St. Marys	30,400	25,400	5,000	0
Wisconsin: Kickapoo River	130,000	95,700	15,000	19,300
Total	760,600	382,100	95,700	282,800
Grand total	797,600	418,100	96,700	282,800

Mr. RILEY. Colonel, I note that you are asking for $96,700 for 1 navigation and 8 flood control studies.

Would you comment briefly on each of those?

Colonel STARBIRD. Colonel Allen will discuss that.

Colonel ALLEN. The $1,000 item for the Illinois Waterway is sufficient to complete an outstanding survey which has as its purpose the examination of the feasibility and desirement of improving the capacity of the Illinois Waterway by the construction of duplicate locks.

Colonel STARBIRD. The flood control studies, sir, the Pecatonica River, Illinois and Wisconsin study, is a study of a smaller basin which is a tributary of the Rock River. It is a continuing study and you can see that the $15,700 requested for fiscal year 1956 is enough to complete the study.

The upper Kankakee River has had repeated and serious flooding during the year.

It is a tributary of the Illinois River.

We will complete with funds allocated in fiscal year 1955 the Illinois, exclusive of the Kankakee. The $15,000 requested for fiscal year 1956 will continue the activity specifically directed at the Kankakee.

The Des Moines River interim study is one for the study of main stem reservoirs along the Des Moines River and its tributaries.

You will remember there was a very serious flood this last year in the Des Moines River.

The amount requested for fiscal year 1956 is $4,000, and that is adequate to complete the study.

The Mississippi River above the mouth of the Ohio River—urban areas—study, is one for the study of the urban areas adjacent to and along the Mississippi River in the middle reach of the section shown on the large map. The study is a continuing one, first authorized in 1944. The amount of $16,200 for fiscal year 1956 will continue activity on this report.

The Minnesota River main stem study is again a study of urban areas and protection by reservoirs. The amount, $10,000, for fiscal year 1956 will continue that study which was authorized first by the 1936 Act.

The Salt River study involves a basin contiguous to the Mississippi in Missouri.

There is one authorized reservoir in that basin.

That study will be continued and brought to completion with an allocation of $14,800 for fiscal year 1956.

The St. Genevieve and St. Marys study is one for the protection of a relatively local area, both agricultural and urban. The amount of $5,000 will bring that study to completion.

The final study, that of the Kickapoo River, sir, is a continuing study, authorized by the Flood Control Act of 1937. The amount of $15,000 is requested to continue the study in 1956.

Mr. RILEY. Thank you, Colonel Starbird.

That will bring the total of these studies up to $418,100. Is that right?

Colonel STARBIRD. That is the total, sir, prior to fiscal 1956 on these particular studies.

Mr. RILEY. After this appropriation you still estimate it will cost $282,800 to complete the studies?

Colonel STARBIRD. That is correct.

PECATONICA RIVER

Mr. DAVIS. This Pecatonica River is one where the survey was suspended for a number of years. Is that the one?

Colonel STARBIRD. No, sir. The Pecatonica is a continuing study. We had funds on that last year.

The Kankakee had no funds specifically last year. The funds we had went on the Illinois, and as I mentioned, the Kankakee is a major tributary of the Illinois.

In addition the last funds on the Mississippi River, urban areas, were in 1953, and on the Salt River they were in 1952, St. Genevieve and St. Marys in 1951. The Kickapoo also was in 1951.

Mr. BRENNAN. We had $3,600 last year on the Pecatonica.

Colonel STARBIRD. We apparently carried on a limited amount of survey work there. I would imagine, sir, it was to continue the compilation of basic data.

As you know, we do use some little flexibility. As you have pointed out, last year's justification did not specifically mention the Pecatonica.

Mr. DAVIS. That has been the place where they had serious local floods every few years. I am glad to note that you do plan to go ahead and finish up the survey.

Colonel STARBIRD. Emphasizing your point, I think in the town of Darlington they had something like $600,000 damage in one flood recently.

Mr. BRENNAN. That was the 1950 flood,—a total damage of more than $600,000. There were floods in 1951, 1952 and 1954, Mr. Davis.

KICKAPOO RIVER

Mr. DAVIS. On the Kickapoo River, tell us how that fits in with these so-caled pilot projects that the Department of Agriculture brought forward.

Colonel STARBIRD. I will ask Mr. Brennan to give detailed comment on that, sir.

Mr. BRENNAN. Our first efforts on the Kickapoo, Mr. Davis, were back in the 1940's when we cooperated with the Soil Conservation Service. The report was completed and submitted in about 1945. There was certain coordination needed in connection with the drainage and agricultural activities which required sending it back to the St. Paul district.

So far as the present time is concerned, the actual selection of areas where we will cooperate with the SCS under new Public Law 566 and in connection with the pilot plant program have not been fully finalized.

As Colonel Starbird says, there is one in that area, I believe.

Mr. DAVIS. Then we would anticipate that whatever would be done as a result of this survey would be after complete coordination with the Department of Agriculture in the work now going on?

Colonel STARBIRD. That is correct, sir.

ADVANCE ENGINEERING AND DESIGN, CORPS OF ENGINEERS

Mr. RILEY. The next item is on engineering and design.

Without objection I will ask that pages 3 through 5 be inserted in the record.

(The matter referred to follows:)

UPPER MISSISSIPPI BASIN

JUSTIFICATION OF ESTIMATE—

Construction, General, Fiscal Year 1956

Advance Engineering and Design

Funds in the amount of $337,000 will be applied to advance engineering and design on 6 projects and restudy of 1 project in the Upper Mississippi Basin. Two of these projects will be brought to the stage where construction can be initiated. The review of the project in the "deferred for restudy" category will be completed. The six projects on which planning will be accomplished are all flood-control projects and have a total estimated cost of $42,300,000.

Project	Total estimated Federal cost	Allotments prior to fiscal year 1956	Tentative allocation fiscal year 1956	Additional to complete after fiscal year 1956	Authorizing legislation	Estimated Federal cost at time of authorization
Navigation projects	None	None	None	None		None
Flood-control projects:						
Illinois:						
Alton	$3,900,000		$50,000	$3,850,000	1954 Flood Control Act.	$3,350,000
Carlyle Reservoir	32,500,000	50,000	75,000	32,375,000	1938 Flood Control Act.	10,805,000
Iowa:						
Muscatine	860,000		70,000	[1] 790,000	1954 Flood Control Act.	827,500
Sabula	300,000		30,000	[1] 270,000	1944 and 1954 Flood Control Acts.	290,000
Missouri:						
Bear Creek Reservoir	3,450,000		50,000	3,400,000	1954 Flood Control Act.	3,326,000
Canton	1,290,000		50,000	1,240,000	1950 Flood Control Act.	1,086,000
Total, flood-control projects.	42,300,000	50,000	325,000	41,925,000		19,684,500
Multiple-purpose projects including power.	None	None	None	None		None
Reexamination of projects in "Deferred for restudy" category: Levees east of Chandlerville, Ill.	12,000		12,000		1938 Flood Control Act.	128,000
Grand total, advance engineering and design.	42,312,000	50,000	337,000	41,925,000		19,812,500

[1] Sufficient planning funds will be available with the fiscal year 1956 request for the necessary preconstruction planning prior to requesting funds for construction.

Mr. RILEY. You are requesting some $337,000 for this item for 6 flood-control projects and a restudy of 1 project.

Is that correct, Colonel?

Colonel STARBIRD. That is correct, sir.

LOCAL COOPERATION

Mr. RILEY. Is there any objection to any of these projects by the local people?

Colonel STARBIRD. Sir, I know of no objections to any of these projects.

Mr. RILEY. What about the local cooperation?

Colonel STARBIRD. To take them in order, sir, Alton is a project authorized last year. I talked recently with the district engineer. Local people are organizing. This would be the initial planning fund. They normally will form their organization at the same time that planning is carried out.

Mr. RILEY. The planning report seems to indicate that elimination of certain features would reduce this cost estimate from 3.9 to 2.5 million.

Colonel STARBIRD. I think that may give a wrong impression, sir. I believe what is referred to is the fact that the building of this project will permit us to eliminate certain construction which is authorized for accomplishment under other projects.

Specifically, it will permit us to eliminate the upper flank levee of the project located downstream; and eliminate the guide wall of lock and dam No. 26, lock and dam No. 26 being in the front of Alton.

The local protection project will incorporate a structure which will obviate necessity for the guide wall.

Mr. RILEY. That possible saving, then, is on other projects and not this particular project. Is that right, Colonel?

Colonel STARBIRD. That is correct, sir. It is on other projects as a result of this project's construction.

Mr. RILEY. All right.

Colonel STARBIRD. The Muscatine project, sir. The people have indicated informally that they are very anxious to support and move along with the project. Here again this is the first appropriation for planning and they would be expected to organize at the same time as the planning is accomplished.

At Sabula, a similar situation exists.

At Bear Creek, there is also a similar situation. Here there has been a great deal of intensive local interest.

Mr. RILEY. As to Bear Creek, it appears a good portion of this is for the relocation of the railroad, and that they propose to bear only about 20 or 25 percent of the cost.

Would not the benefit to the railroads be more than that?

Colonel STARBIRD. I cannot speak exactly on the benefit to the railroads. The railroads have their major shops, sir, in the area which is flooded periodically.

This is a reservoir project. For the majority of reservoir projects there is no contribution required for local interests.

In this particular case, however, because the reservoir really obviates the need for a local protection works, the recommended contribution in the authorizing document was that they furnish the land, rights-of-way, and relocations exclusive of railroad relocations. In this respect, it followed the pattern for other local protection projects.

In Canton, sir, the local people are intensely interested, and in fact have gone in on their own accord since the project was authorized and have put in a partial protection system, a system that will protect them against the 5-year flood, which is very inadequate for an urban area of this type.

Their work, incidentally, can be incorporated in our final levee which we will build.

CARLYLE RESERVOIR

Mr. RILEY. Looking at the Carlyle Reservoir it seems that the cost-benefit ratio here is 1.1.

How does that compare with the other projects, or projects which might want to come into this development?

Colonel STARBIRD. That is a low benefit-to-cost ratio insofar as comparison with other projects are concerned, sir.

The detailed planning of this project has just been initiated; it was initiated by an appropriation of this past year made by the Congress.

It was not in the budget of last year and the Congress added it. A great deal of testimony was given as to the necessity for water supply as well as flood control in this area.

In this particular project there has been no substantial change in the benefit-cost ratio since testimony last year.

Mr. RILEY. Was this written in the House or in the other body?

Colonel STARBIRD. It was written in in the Senate, sir.

In connection with the water supply, I might mention that if there is water supply storage incorporated, local interests will be expected to pay for such storage.

ALTON PROJECT

Mr. RILEY. Colonel Starbird, going back to the Alton project and local protection, does that 3.9 million take in some of the cost of the guide wall and extension to lock 26 and completion of the protection to the Wood River drainage?

Colonel STARBIRD. Sir, it is my understanding that the cost of the project is $3,900,000. As I mentioned earlier, the construction of the front-line protection, which consists of cellular walls plus wall and levee will obviate the necessity for ultimately building the guide wall authorized for the lock and dam project. Also the building of this protection contiguous to Wood River will obviate the necessity for putting in the upper flank levee for Wood River.

It is my understanding further that the cost of the project to include this front-line protection which I describe is $3,900,000.

I believe that the statement in the planning report is in error and I would like permission to add an insert in the testimony should my understanding be incorrect.

Mr. RILEY. It would appear that some of this ought to be charged to these other projects.

(The matter referred to follows:)

The statement in the planning report does not correctly present the picture as to the cost of the Alton project. The cost of the Alton project is $3,900,000. The savings to be realized as a result of construction of the Alton project will have the effect of reducing the cost of lock 26 and the Wood River projects.

CHANDLERVILLE LEVEES

You have a $12,000 item here which I do not believe you touched on covering restudy of the levees east of Chandlerville.

Colonel STARBIRD. That is right, sir.

Mr. RILEY. Why is that back in the request?

Colonel STARBIRD. The levees east of Chandlerville, sir, are levees to protect largely as agricultural area of some 5,200 acres lying along the Sangamon River.

The Sangamon is a tributary of the Illinois River. We originally thought there would be certain reservoir protection given in connection with the Sangamon which might change the design and the justification for these levees east of Chandlerville.

We have now completed, or substantially completed, the Illinois survey, and we realize that te reservoirs will not obviate the necessity for this levee protection.

The authorization is an old one dating back to 1938.

Our former report on the project was that it had a benefit to cost ratio of about 1 to 1. There is a great deal of interest in the project. We believe because it has not been examined to any extent recently there is a strong possibility that it should go up or down, in other words, that the project can be shown to be clearly justified or clearly unjustified so that the local people can know what to expect.

CARLYLE RESERVOIR

Mr. DAVIS. As to the Carlyle Reservoir, you told us that 1.1 benefit-cost ratio has remained quite constant in the years of study, restudy and planning on that project?

Colonel STARBIRD. It has since last year, sir. I do not have figures before that. Actually I do not believe we were called on last year to present the exact benefit-to-cost ratio.

There has been a very serious water-supply situation in that area.

Also this reservoir is fairly close to the confluence of the Mississippi and Ohio, so from a flood-control standpoint it is very beneficial.

A decision was made last year on the Senate side to go ahead with the planning.

It may be after we get further into planning that there will be a change in that benefit-to-cost ratio.

Here again this is an old authorization dating back to 1938, though we have had a survey report of the area which is not yet complete and we did certain investigation related thereto.

Mr. DAVIS. Is this $75,000 expected to complete the planning?

Colonel STARBIRD. It will not complete the planning, sir. There will still be required an additional sum of $295,000 to bring it to construction readiness.

MUSCATINE PROJECT

Mr. DAVIS. $70,000 for Muscatine; will that do the planning job there?

Colonel STARBIRD. That will bring that one to construction status, sir.

Mr. DAVIS. What is the benefit-cost ratio there?

Colonel STARBIRD. The Muscatine project has a benefit-to-cost ratio of 2.24 to 1, sir.

Mr. DAVIS. That is strictly a levee proposition, is it?

Colonel STARBIRD. It is a levee and wall with one small pumping plant.

SABULA PROJECT

Mr. DAVIS. And this Sabula is strictly a local protection project there, too?

Colonel STARBIRD. It is, sir.

Mr. DAVIS. $30,000 will do the planning, and then you would expect to do the construction in 1 fiscal year following. Is that right?

Colonel STARBIRD. That is correct, sir, in 1 fiscal year.

Mr. DAVIS. And the benefit cost?

Colonel STARBIRD. 1.44 to 1, sir.

BEAR CREEK RESERVOIR

Mr. DAVIS. On the Bear Creek are there some levees which already have been built, or would there be some of that type of construction included in the project known as Bear Creek Reservoir?

Colonel STARBIRD. There is no levee involved, sir. We investigated the possibility of levee and found that a better and cheaper way of doing it was by the reservoir recommended.

Mr. DAVIS. There would be additional planning funds required for this, too?

Colonel STARBIRD. Yes, sir; there would be $150,000 additional required to bring it to construction status.

CANTON

Mr. DAVIS. And at Canton this is the initial planning and evidently there would be some additional planning required there, too, after the 1956 fiscal year?

Colonel STARBIRD. Yes, sir. This is the initial planning, though the local people, as I mentioned, have gone ahead with certain construction. There would be additional funds required to bring it to construction status, approximately $82,000.

Mr. DAVIS. And that has a benefit-cost ratio of what?

Colonel STARBIRD. 1.67 to 1, sir.

CONSTRUCTION, CORPS OF ENGINEERS

MISSISSIPPI RIVER BETWEEN THE MISSOURI RIVER AND MINNEAPOLIS

Mr. RILEY. The next item is "Construction." The first project is the Mississippi River between the Missouri River and Minneapolis, Minn. For that you are asking $70,000, the same as in 1955.

Without objection I will ask that pages 7 and 8 be included in the record.

(The matter referred to follows:)

MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MINN. (RECTIFICATION OF DAMAGES) (CONTINUING)

Location.—The modification in the River and Harbor Act of August 26, 1937, provides for annual payments to certain drainage and levee districts to reimburse them for any increased cost of operation and maintenance due to operation of navigation pools until such time as capitalized lump-sum payments can be made; for acquisition of lowlands; and for rectification of damages and construction of remedial works at various locations affected by the navigation pools.

Authorization.—1937 River and Harbor Act.

Benefit-cost ratio.—1.5 to 1 for the 9-foot canalization project, of which the above described work forms a part.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$5,117,000	
Estimated local cash contributions	0	
Estimated project cost	5,117,000	
Appropriation to June 30, 1954	1,953,000	
Appropriations for fiscal year 1955	70,000	
Appropriations to date	2,023,000	39
Appropriations requested for fiscal year 1956	70,000	40
Balance to complete after fiscal year 1956	3,024,000	

PHYSICAL DATA

Under the River and Harbor Act of 1937, provision is made for annual payments for increased pumping costs of 15 levee and drainage districts situated in pools 14, 17, 18, 20, 21, and 22. Also provided for is acquisition of lowlands, the performance of certain remedial work and capitalized lump-sum payments for damages.

Status Jan. 1, 1955

	Status	Completion schedule
Acquisition of lowlands	Completed	
Remedial works, pools 18 and 21	do	
Capitalized costs, drainage districts	0 percent	May 1957.
Annual payments, drainage districts	Continuing	March 1957.
Studies to determine damages	do	
Additional remedial works	0 percent	After 1961.

JUSTIFICATION

In accordance with provisions of the River and Harbor Act of August 26, 1937, annual payments must be made to certain drainage and levee districts to reimburse them for any increased cost of operation and maintenance due to operation of navigation pools until such time as capitalized lump-sum payments can be made. It is essential that certain studies be performed and records maintained in connection with annual payments to drainage and levee districts and that other studies be continued with a view toward effecting capitalized lump-sum settlements and final discharge of the Government's obligation for rectification of damages.

Fiscal year 1956.—Funds in the amount of $70,000 requested for fiscal year 1956 will be utilized for annual payments to levee and drainage districts and to continue studies for the determination of the Government's obligation under the law.

Mr. RILEY. Colonel, how near completion is this project, what is the target date for completion, and when will you be able to complete the annual charges?

Colonel ALLEN. This project authorizes annual payments to drainage and levee districts to reimburse them for extra pumping costs which they have to undertake by reason of the construction of the navigation project.

The project also requires that a report be made to the Congress and a recommendation made for a capitalized lump-sum payment to the levee and drainage districts after which the annual payments would not be made.

That report has been made and was submitted to the Congress on the 18th of March of this year.

The report provides for a lump-sum payment to each of the levee and drainage districts which at 2¾ percent will pay them the cost, their annual cost, of extra pumping.

We have carried this $70,000 for several years as an annual payment until such time as the report could be completed.

Mr. RILEY. Does Congress have to adopt that report and give it its approval first?

Colonel ALLEN. Yes, sir. That report has been made to the Congress and it would require authorization of the Congress and acceptance of that figure by the Congress before the payments could be made.

Mr. RILEY. Do you know whether or not the Public Works Committee will take action on this any time soon?

Colonel ALLEN. I do not know, sir.

Mr. DAVIS. As I understand it, then, we are to turn over a capital payment which will provide this amount of annual income. Is that the idea?

Colonel ALLEN. That is correct, sir.

Mr. DAVIS. Was that 2¾ percent interest rate fixed at the time of this original authorization in 1937, or how did that get in there?

Colonel ALLEN. No, sir. Until the report was completed the interest rate which was used was 2½ percent. It has recently been changed to 2¾ percent, which reflects the figure that we adopted for projects involving damage payments.

Mr. DAVIS. Then I would assume that until such time as that report is approved by the Legislative Committees and you appear before us in support of funds to pay off on the lump sum agreement we will have to carry this $70,000. Is that it?

Colonel ALEN. That is correct, sir. Our schedule shows we have made an assumption that such authorization may not come for another two years. We show another estimated $70,000 in fiscal 1957 if that should be the case.

Mr. DAVIS. That is all, Mr. Chairman.

Mr. RILEY. Colonel, what have we to gain by making the lump sum payment?

Coloney ALLEN. We would be disposing of this project, Mr. Chairman, and eliminating the requirement for the annual payment of $70,000.

Just to give you an order of the amount of the report, the report recommends a figure of $2,480,000 which would be paid to the districts in response to this report.

Mr. RILEY. If that is the amount estimated to produce this same money I am a little at a loss to understand why we would be any better off.

Colonel ALLEN. We were directed, sir, by the Congress to make this report and recommend to the Congress the capitalized lump-sum payments.

We were authorized in the meantime to pay the annual payments until the report could be completed.

Mr. RILEY. I am speaking for myself personally. I cannot see where we gain anything by putting up $2,400,000 to produce $70,000 annually.

Off the record.

(Discussion off the record.)

LOCK NO. 19, KEOKUK, IOWA

Mr. RILEY. The next project is lock No. 19, Keokuk, Iowa. Without objection, I will ask that pages 12 and 13 of the justifications be inserted in the record.

(The matter referred to follows:)

LOCK NO. 19, KEOKUK, IOWA (CONTINUING)

Location.—On the Mississippi River at Keokuk, Iowa, approximately 363 miles above the mouth of the Ohio River.

Authorization.—1930 River and Harbor Act.

Benefit-cost Ratio.—1.5 to 1.0 for the 9-foot canalization project for the Mississippi River, of which lock No. 19 is a functional unit.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$13,900,000	
Estimated local cash contributions	0	
Estimated project cost	13,900,000	
Appropriations to June 30, 1954	5,211,000	
Appropriations for fiscal year 1955	3,200,000	
Appropriations to date	8,411,000	61
Appropriations requested for fiscal year 1956	3,200,000	84
Balance to complete after fiscal year 1956	2,289,000	

PHYSICAL DATA

Lock:

Usable length of lock chamber: 1,200 feet.
Width of chamber: 110 feet.
Normal lift: 38 feet.

Status Jan. 1, 1955

	Percent	Completion schedule
Lands and damages	75	March 1955.
Relocations (utilities)	100	
Lock:		Lock in temporary operation, April 1957.
Lower guide walls (stage I construction)	100	
Lock (stage II construction)	13	June 1957.
Power, control, and lighting (stage III, supply contract)	0.3	Do.
Power, control and lighting (stage IV, installation)	0	Do.
Buildings, grounds, and utilities	7	Do.
Entire project	29	Do.

JUSTIFICATION

The new main lock No. 19 is the last of and an intermediate unit in a series of major lock and dam structures authorized in 1930 for the 9-foot canalization project on the upper Mississippi River. Nine-foot depth for navigation on the Mississippi River between the Missouri River and Minneapolis, Minn., has been available since 1939, but a serious hazard exists at Keokuk, Iowa, because the existing outmoded and structurally unsound lock of short length with slow-operating characteristics, is inadequate in every way for the present-day river traffic. Commerce on the upper Mississippi River project has increased notably, both as to tonnage and number of tows. Commerce in 1953 amounted to 14,741,000 tons. As a result, the bottleneck effect of the old lock is even more pronounced than that previously experienced. Commodities shipped on the upper river include such products as coal, petroleum, grain, manufactured goods, sugar, pig iron, and phosphate fertilizer, a substantial portion of which cargo is directly related to the regional economy.

Fiscal year 1956.—The requested amount of $3,200,000 will be applied to advancement of interrelated work on contracts for the construction of the lock as follows:

Lock construction (stage II)	$2,850,000
Power, control and lighting (stage III)	200,000
Power, control and lighting (stage IV)	150,000
Total	3,200,000

Continuance of the stage II contract is necessary in order that the urgently needed modern lock at Keokuk may be available at the earliest possible date. The contract for power, control, and lighting supply (stage III) was awarded in December 1954 and the contract for power, control, and lighting installation (stage IV) is scheduled for award in January 1956. Funds for the continuation of the stage III contract and for the initiation of stage IV contract are required in fiscal year 1956 in order that the completion of this work may be accomplished in coordination with work on the remainder of the lock and beneficial use of the lock obtained at the earliest practicable date.

Mr. RILEY. I am gratified to note that apparently the cost estimate has been reduced from $20,430,000 to $13,900,000.

Can you tell us, Colonel, just why that happy circumstance developed?

Colonel ALLEN. That comes about by reason of two major factors. A reduction of about $1.6 million in the estimate was due to the fact that further subsurface investigations disclosed that the foundation conditions were more favorable than had been estimated. The other contributing factor was the receipt of a very favorable low bid for the last remaining major item of work in the project. These factors had the effect of reducing the contingency which was carried from around $2 million to $1 million. The total reduction was of the order of $6 million.

Mr. RILEY. I note you are asking for $3,200,000. Am I correct that you have loaned out of appropriations heretofore made on this project $1,240,000 to other projects?

Colonel ALLEN. We have loaned out $1,240,000 to other projects and we have an anticipated unexpended balance on June 30 of some $760,000. The combination of these two figures, plus the funds requested for 1956, reflects the amount of work programed in 1956.

Mr. RILEY. Do you think you can contract that amount of work to advantage?

Colonel ALLEN. Yes, sir. The major contract is now under way. We have let the last major contract, which was the lock itself, in the amount of $8 million. That work is now under way. There are only small contracts remaining to be let.

Mr. RILEY. You have not been able to obligate that much heretofore; have you?

Colonel ALLEN. Not on this job. The last major job was let last April in the amount of $8 million, which leaves very little remaining to be contracted for.

ST. ANTHONY FALLS EXTENSION, MINNEAPOLIS, MINN.

Mr. RILEY. The next project is St. Anthony Falls, Minneapolis, Minn., for which you have requested $1,285,000. Without objection, I will ask that pages 17 through 19 be inserted in the record.

(The matter referred to follows:)

ST. ANTHONY FALLS, MINNEAPOLIS, MINN. (CONTINUING)

Location.—On the Mississippi River, 853 to 857.6 miles above the mouth of the Ohio River at Minneapolis, Minn.

Authorization.—1945 and prior River and Harbor Acts.

Benefit-cost ratio.—1.5 to 1.0 for the 9-foot canalization project for the Mississippi River between the Missouri River and Minneapolis, Minn., of which St. Anthony Falls is a functional unit.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$29,900,000	
Estimated local cash contribution	1,100,000	
Estimated project cost	31,000,000	
Appropriations to June 30, 1954	7,002,000	
Appropriations for fiscal year 1955	1,400,000	
Appropriations to date	8,402,000	28
Appropriations requested for fiscal year 1956	1,285,000	32
Balance to complete after fiscal year 1956	20,213,000	

PHYSICAL DATA

Lower dam:
Type: Concrete gravity.
Height: 25 feet.
Length (including 223-foot spillway section): 453 feet.
Spillway (lower dam):
Type: Gate-controlled, with three 56-foot Tainter gates, with stilling basin.
Channel: 4.6 miles long, 9 feet deep, 150 feet minimum width except at bridges. Widened channel to provide turning basins.
Upper lock (to be constructed in existing upper dam):
Size: 56- by 400-foot clear chamber.
Normal lift: 49 feet.
Upper gate: Tainter.
Lower gates: Miter.
Relocations:
Railroad bridges and privately owned utilities, as follows:
Provide pier protection for two bridges.
Raise one bridge.
Reconstruct channel spans of two bridges.
Relocate 2 submarine cables and 1 power substation and lines.
Alter one gas main.
Lower lock:
Size: 56- by 400-foot clear chamber.
Normal lift: 25 feet.
Upper gate: Tainter.
Lower gates: Miter.
There is also an upper gate bay for an auxiliary lock with a 56-foot Tainter gate.

Status Jan. 1, 1955

	Percent	Completion schedule (tentative, pending submission of review report)
Entire project	29	Entire project, fiscal year 1963.
Lower pool	59	Lower pool, June 1962.
Relocations	16	Relocations, September 1955.
Channels	63	Channels, June 1962.
Lower lock and dam	71	Lower lock and dam, December 1957.
		Lock and dam construction, March 1956.
		Guide walls, June 1957.
		Power, control, and lighting, June 1957.
		First stage, January 1956.
		Second stage, June 1957.
Intermediate pool	0	Intermediate pool, December 1958.
Upper lock	0	Upper lock, fiscal year 1963.
Upper pool	0	Upper pool, fiscal year 1963.

JUSTIFICATION

Minneapolis, Minn., is at head of navigation on Mississippi River and is potentially one of the most important ports on the Mississippi River system. Present harbor, storage, and transportation facilities are extremely inadequate under existing conditions, and are not capable of expansion in the present 100-foot deep gorge, whereas above St. Anthony Falls there is ample space for harbor facilities near to the center of Minneapolis industry, adjacent to a large network of railroads, and where the water level is only about 20 feet below top of banks which are approximately at the level of the surrounding city. The proposed improvement will enable commerce to pass over St. Anthony Falls and gain access to this advantageous area. Commercial traffic in the Upper Mississippi River project has been steadily increasing, amount to 14,741,000 tons in 1953.

Fiscal year 1956.—The requested amount of $1,285,000 will be applied to:

Completion of contract for lower lock and dam (except guide walls and access road)	$1,173,000
Construction of stage 1, power control, and lighting for lower lock and dam	112,000
Total	1,285,000

Funds in the amount of $1,285,000 are required to complete the continuing contract for construction of the lower lock and dam, except for guide walls and access road which will be deleted, and for construction of stage 1 of the power, control, and light for the lower lock and dam so that the gates of the dam may be operated as flow conditions required.

UPPER LOCK AND DAM

Mr. RILEY. The planning report refers to a separate economic study to determine the cost-benefit ratio of the upper lock and dam. Are you able to give the committee that cost-benefit ratio at this time?

Colonel ALLEN. No, sir. That economic study has been completed by the district and division engineers and came into the Chief of Engineers' office this last week. We have not had an opportunity yet to examine it and make a report. It had as its objective a study of the upper lock and dam to determine the economic justification of that portion of this project.

This project, as you will recall, provides for the construction of two locks and dams—the lower lock and dam which is underway now and partly completed, and the upper lock and dam on which no construction work has been done. The cost of the construction of the upper lock and dam is of the order of $20 million.

Mr. RILEY. You have no indication as to what this report would indicate?

Colonel ALLEN. No, sir, I do not. It will require thorough scrutiny both by the Rivers and Harbors Board and particularly by the Chief of Engineers before we wish to report on its findings.

Mr. RILEY. This project has been under study for some time and there has been controversy about it—some differences of opinion, at least—has there not?

LOAN TO PROJECT

Colonel ALLEN. Yes, sir. However, in order to keep this project on schedule this year and to have construction in such shape that it would not be damaged by the expected high spring stages in the river, it was necessary to loan this project more funds than were available through appropriations.

Mr. RILEY. And you did not have any damage there due to flood?

Colonel ALLEN. No, sir. We were able to get the cofferdams out of the river in time this spring so that should a really high flood stage develop it would not result in further damage.

Mr. RABAUT. From where did you get the money?

Colonel ALLEN. Every year, Mr. Rabaut, we have some small surpluses which cannot be expended or obligated on various projects by reason of slippage in the work and those funds we use for loaning back and forth to projects in order to keep them on schedule.

Mr. RABAUT. Do you have that permission?

Colonel ALLEN. Yes, sir.

Mr. RABAUT. What is it—a percentage?

Colonel ALLEN. No, sir; it just depends on the progress that is made on the various jobs. For example, in the case of lock 19, we had funds appropriated which we could not use by reason of a low bid and those funds were made available to other projects where we had a higher bid than had been anticipated, or projects on which the contractor was moving at a greater progress than we anticipated.

Mr. RABAUT. Is credit given for that money when you found your costs were off in the beginning and you came in and asked for more money for a project than was necessary to provide?

Colonel ALLEN. We have to consider it in the request in subsequent years.

CONTRIBUTED FUNDS

Mr. RILEY. Are not the local interests putting up considerable money on this project?

Colonel ALLEN. The local interests were required to contribute $1,100,000 in cash plus other relocations. In using local interest funds on this project we have used them on the project in the same proportion that Federal funds have been provided for the project. In other words, if we should stop this project at this point of completion, having spent about one-third of what we estimated the project would cost, the local interest fund will also be reduced by a like amount.

Mr. RILEY. You have some obligation to complete the entire project with the use of these funds and the contributions from the local people, and you feel you should use them in proportion; is that right?

Colonel ALLEN. That is correct, sir.

Mr. RABAUT. You keep the same proportion percentagewise?

Colonel ALLEN. Yes, sir. As a matter of fact, that accounted for the requirement to loan the project money this year. We had used

local interest funds at a greater rate than Federal funds had been appropriated and we deobligated some of their funds, which required that we make up the difference with Federal funds.

(Discussion off the record.)

Mr. RILEY. There is no limitation, though, on you to use these funds in proportion to the Federal funds?

Colonel ALLEN. Not to my understanding, Mr. Chairman. As I mentioned, they were appropriated by local interests for the entire project, and if through some circumstances the project should be terminated short of completion, we felt we would be breaking faith with them to use all of their funds and not provide them with the facilities to which they had agreed to contribute.

Mr. RILEY. Is this money put up in cash, or do they contribute it as you call for it?

Colonel ALLEN. I think the entire amount has been contributed to the district engineer, Mr. Chairman. If that is incorrect, I will ask permision to correct it in the record. The planning report states that the city has furnished the $1,100,000 cash contribution and the lands required for the work under way.

Mr. RABAUT. What is done with that money, if it is in the hands of the engineer and you want to use it percentagewise in relation to the contribution of the Federal Government to the project?

Colonel ALLEN. It remains in the district engineer's account.

Mr. RABAUT. Does it just lay there dormant, or is it put out at interest, or does it go into the Federal Treasury?

Colonel ALLEN. No, it is not put out at interest by the district engineer; it remains in the local disbursing officer's account with the Treasury.

Mr. RABAUT. If nothing is done about it for a number of years, does it just lay there dormant, or is the money invested?

Colonel ALLEN. I would anticipate if the project were to be terminated or delayed for a number of years, the local interests would request that the funds be returned to them and then they would come into use if and when the project was reactivated and they would be asked to contribute them back to the engineer's account.

Mr. RABAUT. Well the disposition of the money is important if it is a lot of money.

BEARDSTOWN, ILL.

The next is Beardstown, Ill. Without objection, we will insert pages 30 and 31 in the record at this point.

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(The matter referred to follows:)

BEARDSTOWN, ILL. (CONTINUING)

Location.—Local protection for the city of Beardstown, Ill., located in Cass County about 70 miles below Peoria. The project extends along the left bank of the Illinois River from mile 79 to mile 89 above its mouth.

Authorization.—1950 Flood Control Act.

Benefit/cost ratio.—1.46 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$4,120,000	
Estimated local cash contributions	0	
Estimated project cost	4,120,000	
Appropriations to June 30, 1954	60,000	
Appropriations for fiscal year 1955	400,000	
Appropriations to date	460,000	11
Appropriations requested for fiscal year 1956	800,000	30
Balance to complete after fiscal year 1956	2,860,000	

PHYSICAL DATA

Levees:

Average height: 23 feet.

Length: 20 miles.

Area protected in Lost Creek drainage and levee district: 3,300 acres.

Area protection in South Beardstown drainage and levee districts: 8,500 acres.

Area protected in valley drainage and levee district: 3,200 acres.

Floodwall:

Average height: 24.9 feet.

Length: 3,313.2 feet.

Existing wall replaced: 2,507.5 feet.

New wall: 805.7 feet.

Top elevation: 455.2 feet mean sea level.

Maximum height: 29.6 feet.

Freeboard: 3.0 feet.

Status Jan. 1, 1955

	Percent	Completion schedule
Floodwall	0	June 1956.
Levees	0	June 1960.
Entire project	0	June 1960.

JUSTIFICATION

The entire city of Beardstown and the adjacent lands are subject to flooding during high stages in the Illinois River. The project will provide protection to this city, with a population of 6,080 (1950), and to the agricultural lands within the Lost Creek, South Beardstown and valley drainage and levee districts. Within the city of Beardstown there are a number of industries, including railroad facilities, which are subject to damage. The city is a principal center of agricultural activity in the region with a large grain elevator and flour mill. Current industrial expansion within the city includes proposed expansion of facilities at the existing flour mill and proposed construction of a new grain elevator. State Highway No. 100 and United States Highway No. 67, and tracks of the Chicago, Burlington & Quincy Railroad and the Baltimore & Ohio Railroad are within the area subject to flooding.

Extensive flood damages were suffered in 1922, 1926, 1927, and 1943. In 1943, emergency action by military personnel prevented excessive flood damage. A

flood of that magnitude would cause about $6,849,000 damages (1954 values) to urban property and crops, losses in wages and profits and interruption of communication and utility facilities. The average annual damages are estimated at $293,600. The average annual benefits from the proposed improvements are estimated at $220,400.

Fiscal year 1956.—The requested amount of $800,000 will be applied to:

Continue construction of flood wall	$476,000
Initiation of reconstruction of levees	200,000
Engineering and design	59,500
Supervision and administration	64,500
Total	800,000

The sum of $800,000 is required in the fiscal year 1956 to:

(*a*) Complete the flood wall in front of the city of Beardstown, a vital increment in the plan for protection of the city.

(*b*) To start reconstruction of the levees which, when completed, will afford protection not only to the city of Beardstown, but also to 15,000 acres of productive farm land and buildings, State Highways Nos. 100 and 67, and tracks of the Chicago, Burlington & Quincy Railroad and the Baltimore & Ohio Railroad.

Completion of the flood wall and adjacent levees should be accomplished at the earliest date possible in order to afford adequate protection to the city of Beardstown, as well as the productive agricultural property.

Mr. RABAUT. How is this project going along?

Colonel STARBIRD. This project had the first funds appropriated in fiscal year 1955. The first work undertaken was raising and strengthening the flood wall, about 3,000 feet long, which now exists and which was constructed by local interests in front of the town. Contract for that was awarded in December of 1954. The work is going along well.

We are requesting for fiscal year 1956, $800,000. $476,000 of that will be used to continue construction of the wall. We will initiate construction of the levee part of the work in April of 1956.

Mr. RABAUT. I notice you have an unobligated balance of $5,000 estimated for June, and an unexpended balance of $20,000.

Colonel STARBIRD. That, after all, is a small amount. It is based on our expectation of the added engineering and contingency expenditures that we will have to make on the going contract. There is no additional contract to be awarded this year.

I might mention that this is a continuing contract, so that, if we are a little bit ahead, we will use up the additional amount.

CLEAR CREEK DRAINAGE AND LEVEE DISTRICT, ILLINOIS

Mr. RABAUT. The next is the Clear Creek Drainage and Levee District, Illinois. We will insert pages 35 and 36 in the record at this point.

(The matter referred to follows:)

CLEAR CREEK DRAINAGE AND LEVEE DISTRICT, ILLINOIS (Continuing)

Location.—This project is in Union and Alexander Counties, Ill., on the left bank of the Mississippi River between river miles 57 and 66 above the mouth of the Ohio River. This district includes practically all bottom lands between the river and the bluffs, and between Ware, Ill., on the north and McClure, Ill., on the south.

Authorization.—1936 Flood Control Act.

Benefit/cost ratio.—1.87 to 1 (5 unit system).

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$4,750,000	
Estimated local cash contributions	0	
Estimated project cost	4,750,000	
Appropriations to June 30, 1954	2,680,000	
Appropriations for fiscal year 1955	200,000	
Appropriations to date	2,880,000	61
Appropriations requested for fiscal year 1956	600,000	73
Balance to complete after fiscal year 1956	1,270,000	

PHYSICAL DATA

Levees:

Average height: 18 feet.

Length: 21.0 miles.

Status Jan. 1, 1955

	Percent	Completion schedule
Levees	56	June 1958.
Permanent operation equipment	0	April 1958.
Entire project	59	June 1958.

JUSTIFICATION

This project, when completed in combination with and upon completion of the authorized work in the Preston, the North Alexander, the Miller Pond, and the East Cape Girardeau and Clear Creek districts, will provide protection to an area of 51,500 acres of highly productive agricultural lands, and upon completion of all track raises (relocations) now under contract will allow uninterrupted operation of the Missouri Pacific lines between East St. Louis and the Southwest. All those districts were partially or completely inundated by the 1943 and 1944 floods. Total damages inflicted by these floods for all five districts are estimated to have been $5,285,000, and to Clear Creek, alone, $1,934,600.

Inasmuch as the project is an integral part of five separate flood-control projects, benefits have been computed for the combined projects. Average annual benefits, all flood control, are estimated to be $744,200.

Fiscal year 1956.—The requested amount of $600,000 will be applied to:

Continue construction of levee	$509,600
Engineering and design	25,000
Supervision and administration	65,400
Total	600,000

The allocation of $600,000 for fiscal year 1956 is required to permit the orderly construction progress of the project to be carried out toward completion of the project in the fiscal year 1958. This amount is required for scheduled progress on embankment and drainage facilities.

Mr. RABAUT. I note the appropriation requested for fiscal year 1956 is $600,000, and you are getting into action on this project because you only had $200,000 in 1955.

Colonel STARBIRD. That is correct.

Mr. RABAUT. The appropriations to date are $2,880,000 and after 1956, to complete, you need $1,270,000.

Colonel STARBIRD. You can see from the map that we have underway the work shown in green. That is a continuation of the back levee. We will continue that back levee in fiscal year 1956 and the entire construction cost will be on that back levee.

Mr. RABAUT. The planning report indicates on page 5 that there may be some problem about obtaining the necessary right-of-way for the 1956 levee program, and also for installation of the under-seepage relief walls.

What is the status of the negotiation at the present time?

Colonel STARBIRD. I know of know difficulty with respect to securing the back levee. For the work that is scheduled for fiscal 1956, it is expected that the rights-of-way will become available in time.

There is a problem here in this levee district with respect to securing the right-of-way for the underseepage walls. This is a unit, incidentally, of five units altogether. The safety of one unit depends to some extent on the safety of the other units. In this particular case, the local people have not been convinced that the underseepage walls are necessary; consequently, they have not provided the lands and rights-of-way for the work concerned.

There is no money scheduled for underseepage measures in fiscal 1956. We shall continue to negotiate and try to get those rights-of-ways.

DEGOGNIA AND FOUNTAIN BLUFF DRAINAGE AND LEVEE DISTRICT, ILL.

Mr. DAVIS. Turning to page 40, Degognia and Fountain Bluff Drainage and Levee District, Ill., the request is for $420,000 for fiscal 1956. Without objection, pages 40–41 of the justifications will be put in the record at this point.

(The matter referred to follows:)

DEGOGNIA AND FOUNTAIN BLUFF DRAINAGE AND LEVEE DISTRICT, ILLINOIS
(CONTINUING)

Location.—The project is in Jackson County, Ill., on the left bank of the Mississippi River between river miles 84 and 100 above the mouth of the Ohio River. This district includes the bottom lands between the river and the bluffs and between Cora, Ill., on the northwest and the Grand Tower Drainage and Levee District on the south.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—1.63 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$6,080,000	
Estimated local cash contributions	0	
Estimated project cost	6,080,000	
Appropriations to June 30, 1954	4,461,000	
Appropriations for fiscal year 1955	550,000	
Appropriations to date	5,011,000	82
Appropriations requested for fiscal year 1956	420,000	89
Balance to complete after fiscal year 1956	[1] 649,000	

[1] Includes $628,000 for repayment of borrowed funds.

PHYSICAL DATA

Levees:
Average height: 18 feet.
Length: 18.4 miles.
Relocations:
Illinois Central Railroad: 0.75 mile.
Missouri Pacific Railroad: Alter bridge and raise approaches.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	98	June 1955.
Levees	82	September 1956.
Permanent operating equipment	100	Completed.
Entire project	83	September 1956.

JUSTIFICATION

This project, in combination with Grand Tower Drainage and Levee District will provide protection to about 51,000 acres of land against floods up to a height which may be expected to occur about once in 50 years. The population of the district is about 1,000. Included in the area to be protected are the towns of Cora, Raddle, Jacob, Grimsby, Sand Ridge, and Gorham. The floods of 1943, 1944, and 1947 inundated the district by overtopping the existing substandard levees. The total damages inflicted by these floods approximate $6,119,000. The average annual benefits for the project are estimated to be $363,900.

Fiscal year 1956.—The requested amount of $420,000 will be applied to:

Continue construction of levees	$330,000
Engineering and design	19,000
Supervision and administration	71,000
Total	420,000

Funds requested for fiscal year 1956 will essentially complete the project, and funds required after fiscal year 1956 are mostly for repayment of loans.

Mr. DAVIS. How did you get this project so deeply indebted to others? Did you have any particular problem here, or were you able to get such a good proposition on work done that you decided to go ahead with it?

Colonel STARBIRD. On certain of those levee units work is slowed up and, as Colonel Allen mentioned, we loan to and from projects according to the progress they can make, and also according to the advantage to the Government, as you realize. As you note, this levee is nearing completion and if we can get through with it on favorable terms, that naturally tends to decrease the supervision and engineering charges. It was of advantage to the Government to push this project along in view of the fact certain others were not moving quite as fast.

Mr. DAVIS. This is getting it pretty well along toward completion—up to within $20,000, or so. Is that a matter of finishing up some odds and ends that will have to be carried over into the next fiscal year, or a physical matter?

Colonel STARBIRD. No, sir, it is not a physical matter. We might well complete this project in this coming year. If we can, we will, in all probability, loan that money to this project so that they can go ahead and complete.

Mr. DAVIS. The quicker you can get a project done, the quicker you can turn it over to the local people for maintenance?

Colonel STARBIRD. That is correct.

Mr. DAVIS. Are they ready to take it over?

Colonel STARBIRD. As far as I know, yes, sir. I have not rechecked to see whether they are ready on this particular item of work. It is customary for us here to turn over completed sections as they are ready.

EAST ST. LOUIS AND VICINITY, ILLINOIS

Mr. RABAUT. The next is East St. Louis and vicinity, Illinois. The estimated Federal cost is $21,400,000. Without objection, we will insert pages 45 and 46 in the record.

(The matter referred to follows:)

EAST ST. LOUIS AND VICINITY, ILLINOIS (CONTINUING)

Location.—In Madison and St. Clair Counties, Ill., on the left bank of the Mississippi River between river miles 175 and 195 above the mouth of the Ohio River.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—33.40 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$21,400,000	
Estimated local cash contributions	0	
Estimated project cost	21,400,000	
Appropriations to June 30, 1954	5,869,000	
Appropriations for fiscal year 1955	650,000	
Appropriations to date	6,519,000	30
Appropriations requested for fiscal year 1956	1,285,000	36
Balance to complete after fiscal year 1956	13,596,000	

PHYSICAL DATA

Relocations:

Missouri Pacific Railroad: Alter bridges.

Terminal Railroad Association: Alter bridges and approaches.

Illinois Terminal: Alter bridges and approaches.

Gulf Mobile and Ohio: Alter bridges and approaches.

Cleveland, Cincinnati, Chicago & St. Louis Railroad: Alter bridges and approaches.

Wabash Railroad: Alter bridges and approaches.

Illinois Central Railroad: Alter bridges and approaches.

Pumping plants: Construction of 7 new pumping plants and alteration to 6 existing pumping plants.

Levees:

Average height: 21 feet.

Length: 21.8 miles.

Flood walls:

Average height: 19 feet.

Length: 2.8 miles including 2.2 miles of parapet wall.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	0	June 1960.
Levees	38	June 1959.
Flood walls	13	June 1960.
Pumping plants	9	June 1959.
Permanent operating equipment	0	January 1955.
Entire project	26	June 1960.

JUSTIFICATION

This project contains approximately 71,000 acres of highly developed industrial and agricultural lands and, upon completion, will furnish protection to one of the greatest concentrations of industrial and shipping wealth, exposed to damage by flooding, in the entire country. It includes ont only the city of East St. Louis, but also Granite City, Madison, Venice, Brooklyn, Fairmont City, and Monsanto, Ill. There is located at Monsanto one of the largest chemical plants in the country. Within the area are many manufacturing companies producing defense materials, such as the Granite City Steel Co., which recently quoted annual net sales of approximately $46 million, as well as the Granite City Engineer Depot, where various construction materials and equipment are assembled for shipment to overseas and continental Army, Air Force, and Navy installations. The average annual benefits are estimated at $33 million.

Fiscal year 1956.—The requested amount of $1,285,000 will be applied to—

Initiation construction of railroad alterations	$176,800
Continue reconstruction of levee	435,900
Complete the construction of 2 small pumping plants and the reconstruction of 1	382,500
Engineering and design	191,000
Supervision and administration	98,800
Total	1,285,000

The appropriation of $1,285,000 for fiscal year 1956 is required to permit the orderly construction on program of the project to be carried out toward completion in fiscal year 1960. The principal amount of the funds requested for fiscal year 1956 will be required for completion of or continuation of continuing contracts for units of the levee embankment, seepage control measures, pumping plants, and railroad alteration.

Mr. RABAUT. I note the requested appropriation for 1956 is $1,285,000 and, with this amount, the project will go over the hump.

Colonel STARBIRD. It will actually have had appropriated a little less than 50 percent—36 percent.

Mr. RABAUT. It will take $13,596,000 to complete after this year.

Colonel STARBIRD. Yes, sir.

Mr. RABAUT. Give us a brief statement on this project.

PROJECT DESCRIPTION

Colonel STARBIRD. This project is one for the protection of a very highly developed area, and when combined with the Prairie du Pont and Wood River areas contains a population of over 200,000 persons altogether and with property values of about $1,250 million. The project is directly opposite St. Louis. It is the major crossing of railroads and highways and it is at a relatively narrow section of the river.

The work has been progressing satisfactorily. The funds requested will be used to continue the lower flank levee. The front line levee has been completed in part to a grade corresponding to 52 feet on the St. Louis gage, and in part to a grade corresponding to 47 feet on the St. Louis gage.

The remainder of the money will be required to carry on construction of one pumping plant already awarded, and to negotiate an additional pumping plant—I would like to change that to "carry on 2 and initiate 1."

There has been a major change in the cost of this project since last year.

Mr. RABAUT. Yes; from $12,871,000 to $21,400,000.

Colonel STARBIRD. That is correct.

ENGINEERING AND SUPERVISION COSTS

Mr. RABAUT. And the engineering and supervision costs together are approximately 17 percent of the total cost, according to the planning report. Is not that somewhat high?

Colonel STARBIRD. The figure is correct; it is in the neighborhood of 17 percent.

This is a project that has been underway for several years. It is a rather complex project both for supervision and for design. It is higher than is normal for most of our projects, sir.

LOCAL CONTRIBUTIONS

Mr. RABAUT. What changes will be made in the local contribution agreements as the result of the increase in the degree of the protection of this project? This increase gives a greater protection; does it not?

Colonel STARBIRD. It is not to provide greater protection than when we started; not a greater protection than was authorized by the authorizing document. The local people will continue to pay for the same elements; in other words, for the lands, rights-of-way, for relocations, maintaining the project and operating it upon completion. This overall cost to them is estimated as $1,100,000, with $100,000 a year for maintenance and operation. The $1,100,000 is an increase by $193,000 since the prior estimate last year.

RELOCATION

Mr. RABAUT. The planning report on page 6 shows that not construction work has been started on any of the crossings of the seven railroads within the district. Is there some particular reason for this delay?

Colonel STARBIRD. No, sir; I think not. We have proceeded, as you can see from the map, by the part shown in black and the part along the river shown in brown, to bring the frontline levee to the measure of protection—to bring it up to grade generally. Now we are beginning to close the flank levee and the work to be initiated this year and carried on next year is the closure of the levee. At the same time, we are starting this year two of the railroad relocations. I neglected to mention these relocations in connection with my earlier recital of the work we would do in fiscal 1956.

STATUS OF FUNDS

What is the status of your obligations? Do you have any unobligated funds?

Colonel STARBIRD. As of the present moment, we have unobligated $248,000. We estimate we will carry over at the end of the fiscal year, unobligated, about $125,000, with unexpended funds of $160,000. In addition to those figures of $125,000 and $160,000, there will be a loan from this project of $40,000.

Mr. RILEY. Will that be repaid during the fiscal year 1956?

Colonel STARBIRD. It will be repaid during fiscal 1956, sir, or it is planned to be.

Mr. RILEY. Do you plan to obligate the $40,000 and the $125,000, and the requested appropriation all during the next fiscal year?

Colonel STARBIRD. That is correct. The actual schedule you have before you reflects this carryover.

Mr. RILEY. Coming back to that 17 percent for engineering and supervision: Does this excessive engineering and supervision cost save money on this project, in your opinion?

Colonel STARBIRD. I believe so. Of course when you run a project for a number of years with relatively light appropriations, your administration and supervision is normally higher than when you complete it rapidly. This project was begun in 1937 and it has been interfered with by two war periods since that time and this naturally has had its effect on supervision and administration. It has also had some effect on engineering, because there have been great changes in this critical crossing area of the Mississippi River, and it has been necessary to do certain other design work now connected with it. As brought out by Mr. Rabaut, we have had to go back and reevaluate the degree of protection we provide. We have done that, and that required added engineering expenditures.

CHANGE IN LEVEE HEIGHT

In connection with the change in the degree of protection, we submitted a special report to Congress this year, to the Public Works Committee, indicating the necessity therefor, the authority, and the means of making the change. That is contained in letters to Congress of December 8 and November 8, 1954.

Mr. RILEY. Was this increase authorized by Congress?

Colonel STARBIRD. Not as such. The authorization on this levee, as for two others that we will come to later, stems from the 1936 and 1938 acts. The project documents recommended protection against "the maximum probable flood." The flood which was considered at that time was one which has occurred once during the period of our historical record. That was in 1844. That flood had a flow of 1,300,000 cubic feet per second past St. Louis. As the result of the 1947 and 1951 floods and as a result of our detailed investigation of the situation on the St. Louis side of the river, we have determined that the carrying capacity of the river was less than we formerly estimated here—less to the extent that a flood of 1,300,000 cubic feet instead of having a probability of occurrence of around once every 200 years, had a probability of occurrence of about 1 year in 30, or somewhere in that neighborhood.

This is a most complex reach of the river. It is just below the junction of two major rivers. It is also an area where, because of the junction of two major rivers, major railroad crossings converge and industry has settled.

In view of all the factors, we now believe the carrying capacity of the river is less than called for by the authorizing document. The change being made in grade is to come to the grade considered in the authorizing document, and the Chief of Engineers concluded he had the authority to make the change in view of the wording of the original document. However, he did feel Congress should be informed of the situation and he submitted a special report which I just described.

(Discussion off the record.)

Mr. RILEY. On this report you referred to that has been submitted to Congress, a while ago we had a project in which it was brought out that Congress should take cognizance of the report and recommend it

being carried out. Was that same procedure followed in regard to this project and did Congress evaluate your report and approve your recommendation?

Colonel STARBIRD. The Congress is the old project documents gave the Chief of Engineers the authority to make such a modification as he deemed appropriate. We feel we have not changed the scope of the project in what we were trying to protect and the degree of protection, but we felt Congress should be informed.

I do not think I can comment on what action the Congress might desire to take. However, we felt we had authority to go ahead, but we did want the Congress to know what was being done.

(Discussion off the record.)

Mr. RILEY. Would the funds you are asking for here be used to raise the levee to the authorized height?

Colonel STARBIRD. If I may ask you to look at your maps, the portion of the project shown in black was constructed as an adjunct to and in connection with the construction of the Chain of Rocks Canal. We had extra material there and actually the levee there was brought to a higher grade. The part shown in brown of the front-line levee has been brought to a lower grade. It will not be modified with the funds requested in 1956.

The portion of the flank levee shown in green and red would be carried to the 52-foot grade—in other words, to the higher grade.

I might mention that when I speak of the 47-foot grade and the 52-foot grade, the difference of 5 feet is only necessary in 1 short stretch—basically, the stretch where the bridges cross. There is a sloping and lower rise involved as you move up and down the river, and as you move up and down the tributaries where the flank levees are.

BENEFIT-COST RATIO

Mr. DAVIS. The benefit-cost ratio you have here seems almost unbelievable. I remember we commented on that last year when you gave it to us as 13 to 1 and now I notice in the justifications you have jumped it up to 33 to 1.

Colonel STARBIRD. That is due to this. Probably, at least once in every 50 years—and, of course, we compute our benefits and the annual charges based on a 50-year period—one of these great floods would overtop the lower grades. We realized as early as last year that we did not have quite the flowage in there at the 47-foot stage that we thought we had originally. I do not know exactly what was the number of overtoppings they estimated; probably it was 1 overtopping in the 50 years, and that 1 overtopping is now being obviated by this raise in grade, which increases your benefit materially—much more than the increased cost involved.

GRAND TOWER DRAINAGE AND LEVEE DISTRICT, ILLINOIS

Mr. RILEY. The next project is Grand Tower Drainage and Levee District, Illinois, for which you are asking $250,000. Without objection we will insert pages 51 and 52 in the record.

(The matter referred to follows:)

GRAND TOWER DRAINAGE AND LEVEE DISTRICT, ILLINOIS (CONTINUING)

Location.—The project is located in Jackson County, Ill., and Perry County, Mo., on the left bank of the Mississippi River between river miles 75 and 84 above the mouth of the Ohio River.

Authorization.—1938 Flood Control Act.

Benefit-cost ratio.—1.35 to 1

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$4,800,000	
Estimated local cash contributions	0	
Estimated project cost	4,800,000	
Appropriations to June 30, 1954	3,934,000	
Appropriations for fiscal year 1955	390,000	
Appropriations to date	4,324,000	90
Appropriations requested for fiscal year 1956	250,000	95
Balance to complete after fiscal year 1956	[1] 226,000	

[1] Required for repayment of borrowed funds.

PHYSICAL DATA

Levees:

Average height, 20 feet; length, 17.2 miles

Relocations: Raise approach and bridge of Missouri Pacific Railroad over Big Muddy River

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	100	Complete.
Levees	92	June 1956.
Permanent operating equipment	100	Complete.
Entire project	93	June 1956.

JUSTIFICATION

This project in combination with the Degognia and Fountain Bluff District, will provide protection to about 51,000 acres of highly productive agricultural land, of which 14,800 acres are in the Grand Tower District. Also included in the area to be protected is a main-line railroad. The floods of 1943, 1944, 1947, and 1951 inundated approximately 12,000 acres of land included in the area to be protected by this project causing damages estimated at $3,329,000. The average annual benefit is estimated to be $238,500.

Fiscal year 1956.—The requested amount of $250,000 will be applied to:

Levees	$215,000
Engineering and design	15,000
Supervision and administration	20,000
Total	250,000

The funds requested for fiscal year 1956 will physically complete the project. However, funds were borrowed in prior years to maintain schedules, and repayment will be required after fiscal year 1956.

Mr. RILEY. Apparently the amount requested will bring the project up to 95 percent of completion. Is that correct?

Colonel STARBIRD. That is correct, sir. This is another project like the one you discussed earlier, Degognia, where we have brought it to near completion or will bring it to near completion with the 1956 funds.

Mr. RILEY. What is the status of your money on this project?

Colonel STARBIRD. We expect to carry over on this project $8,900 unobligated and there will be $43,900 unexpended. However, we did make a loan to this project and there is a loan of $232,000 included.

Mr. RILEY. Are you asking for enough money to repay that this year, or is that for repayment in 1957?

Colonel STARBIRD. That is a 1957 repayment.

PRESTON DRAINAGE AND LEVEE DISTRICT, ILLINOIS

Mr. RILEY. We will now take up the Preston Drainage and Levee District, Illinois.

Without objection, we will insert pages 56 and 57 in the record at this point.

(The matter referred to follows:)

PRESTON DRAINAGE AND LEVEE DISTRICT, ILLINOIS (CONTINUING)

Location.—In Union County, Ill., on the left bank of the Mississippi River between river miles 66 and 76 above the mouth of the Ohio River.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—1.87 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$2,450,000	
Estimated local cash contributions	0	
Estimated project cost	2,450,000	
Appropriations to June 30, 1954	1,713,000	
Appropriations for fiscal year 1955	175,000	
Appropriations to date	1,888,000	77
Appropriations requested for fiscal year 1956	260,000	88
Balance to complete after fiscal year 1956	302,000	

PHYSICAL DATA

Levees:

Average height: 18 feet.

Length: 8.9 miles.

Relocations: Raise approach and bridge of Missouri-Pacific Railroad over Big Muddy River.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	100	Complete.
Levees	69	June 1957.
Permanent operating equipment	0	June 1957.
Entire project	75	June 1957.

JUSTIFICATION

This project, when completed, will in combination with and upon completion of the authorized work in the North Alexander, the Clear Creek, the Miller Pond and the East Cape Girardeau and Clear Clear Creek Districts, provide protection to an area of 51,500 acres of highly productive agricultural lands and to the rights-of-way of a main-line railroad. All of these districts were partially or completely inundated by the 1943 and 1944 floods. Total damages inflicted by these floods are estimated to be $1,600,000 for the Preston Drainage and Levee

District alone and for all 5 districts the damages are estimated to have been $5,285,000. The average annual benefit, computed for the 5 related districts mentioned above, is estimated to be $744,200.

Fiscal year 1956—The requested amount of $260,000 will be applied to:

Levees (borrow pit corrective measures)	$229,000
Engineering and design	6,000
Supervision and administration	25,000
Total	260,000

The borrow pit corrective measures, proposed in fiscal year 1956, are required to prevent damages to completed levee embankment.

Mr. RILEY. In the planning report there is some indication that you have some right-of-way difficulties. Would you give us the background and the present status of that?

Colonel STARBIRD. This is a project where we are having difficulties with respect to the seepage control rights-of-way.

As I mentioned earlier, we shall continue to try to negotiate to get a settlement on that matter. We feel that seepage control measures are essential but no funds are requested for the fiscal year 1956 for such measures. We will not request them until we have the rights-of-way.

Mr. RILEY. This project is approaching completion also, is it not?

Colonel STARBIRD. It is, sir.

Mr. RILEY. What is your financial status there?

Colonel STARBIRD. On this, sir, we repay a loan during the fiscal year 1955. The carryover is only $5,000 unobligated, and $40,000 total unexpended. That is the estimate for the end of the year.

WILSON AND WENKEL AND PRAIRIE DU PONT DRAINAGE AND LEVEE DISTRICTS, INCLUDING FISH LAKE DRAINAGE AND LEVEE DISTRICT, NO. 8, ILLINOIS

Mr. RILEY. The next project is the Wilson and Wenkel and Prairie Du Pont Drainage and Levee Districts, including Fish Lake Drainage and Levee District No. 8, of Illinois.

We will insert pages 61 and 62 in the record at this point.

(The matter referred to follows:)

WILSON AND WENKEL AND PRAIRIE DU PONT DRAINAGE AND LEVEE DISTRICTS, INCLUDING FISH LAKE DRAINAGE AND LEVEE DISTRICT NO. 8, ILLINOIS (CONTINUING)

Location.—In Monroe and St. Clair Counties, Ill., on the left bank of the Mississippi River between river miles 166 and 175 above the mouth of the Ohio River.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—5.63 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$5,860,000	
Estimated local cash contributions	0	
Estimated project cost	5,860,000	
Appropriations to June 30, 1954	1,857,000	
Appropriations for fiscal year 1955	0	
Appropriations to date	1,857,000	32
Appropriations requested for fiscal year 1956	485,000	40
Balance to complete after fiscal year 1956	3,518,000	

PHYSICAL DATA

Relocations: Missouri Pacific Railroad (alter bridges and raise approaches); Terminal Railroad acquisition (alter bridge and raise approaches).

Levees:
Average height: 24 feet.
Length: 12.1 miles.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	0	June 1958.
Levees	33	Do.
Permanent operating equipment	0	March 1955.
Entire project	30	June 1958.

JUSTIFICATION

The project will provide protection to the district, which contains approximately 12,000 acres of highly productive agricultural lands. Located within the area to be protected is the town of Dupo, Ill., and the main freight and classification yards of the Missouri Pacific Railroad, which handles an average of 4,000 cars a day in north and south train movements. The estimated average annual benefits for this project amount to approximately $1,399,000. Portions of the area to be protected have been inundated by the floods of 1943, 1944 and 1947, causing damages estimated at $2,045,000.

Fiscal year 1956.—The requested amount of $485,000 will be applied to:

Initiate construction on railroad alterations	$192,600
Continue construction of levees	198,100
Engineering and design	54,000
Supervision and administration	40,300
Total	485,000

The appropriation of $485,000 for fiscal year 1956 is required to permit an orderly construction program for the project to be carried out toward completion in fiscal year 1958. The principal application of these funds will be to initiate riverfront levee construction in the Fish Lake area, a modification of the Wilson and Wenkel project and initiate construction on railroad alterations. Completion of the Fish Lake area is necessary before complete protection to the entire project is attained.

Mr. RILEY. Apparently this Fish Lake district was added to the project in 1954. The project is being increased from a 47-foot grade to a 52-foot grade.

Will you give us a little comment on that, please?

Colonel STARBIRD. Yes. The project has had the two changes you mentioned since reported to you last year. The Fish Lake section, is the addition, looking at your map. It is the front line levee shown in red, together with the flank levee south of the front line levee, and shown in brown.

It protects an added area of about 2,000 acres. In addition, it obviates the necessity for a flank levee that originally crossed to high ground at the upper end of the Fish Lake district.

The change in grade is the same change in grade mentioned and described earlier for the East St. Louis levee. Here, as I explained, the increase in height is much less than the 5 feet. As I remember, it starts at the upper end in the neighborhood of a 3-foot rise above the prior plan and reduces to zero at the lower end of the flank levee. The overall change of these two factors was to raise the estimated cost from $4,182,000 last year to $5,860,000 this year.

The addition of the Fish Lake project was authorized by the omnibus authorization act of 1954.

Mr. RILEY. Will the setting in of this new grade have any effect on the local cooperation agreements?

Colonel STARBIRD. Not on the agreements. There is an added cost to the local people involved here, but it is small.

Mr. RILEY. Have they agreed to it?

Colonel STARBIRD. It is an increase of about $97,000 since last year. I believe they will agree to it. I believe it will be agreed to. The district engineer it still negotiating with the local people concerning it.

Mr. RILEY. Now you have certain relocations, raising bridges and approaches to pass over the levees. Has any of that work been started?

Colonel STARBIRD. Yes. We will initiate the relocations shown by the red circle at the north end of your map; that is, the crossing of the Missouri Pacific Railroad over the levees and Prairie DuPont Creek. There is no other major relocation that has been accomplished to date.

Mr. RILEY. Are there others involved or not?

Colonel STARBIRD. Yes, there is another crossing and closure structure at the south end of the project where the Missouri Pacific Railroad crosses Columbia Creek.

Mr. RILEY. This is apparently another one of those projects which has a high engineering and supervision cost. Will you comment on that, please?

Colonel STARBIRD. Yes. The engineering and supervision costs here run to a total of approximately 17 percent, the same substantially as the one you discussed earlier. Here again we have a levee unit whose construction was initiated in 1935 and was interfered with by two wars. I would like to recheck that date. It says in the planning report 1935. It is an early levee, but if that is wrong I would like to change that figure. (1935 is correct.)

Mr. RILEY. You have the privilege of changing. Apparently you will have obligated all your money and spent all of it by the end of the fiscal year; is that correct?

Colonel STARBIRD. That is correct, and there is a small loan to the project of $28,000.

Mr. RILEY. Will that be repaid during 1956?

Colonel STARBIRD. It will be.

WOOD RIVER DRAINAGE AND LEVEE DISTRICT, ILLINOIS

Mr. RILEY. The next project is the Wood River drainage and levee district in Illinois. Without objection we will insert pages 66 and 67 in the record at this point.

(The matter referred to follows:)

WOOD RIVER DRAINAGE AND LEVEE DISTRICT, ILLINOIS (CONTINUING)

Location.—In Madison County, near Alton, Ill., on the left bank of the Mississippi River between river miles 195 and 203 above the mouth of the Ohio River.
Authorization.—1938 Flood Control Act.
Benefit-cost ratio.—13.80 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$16,350,000	
Estimated local cash contributions	23,000	
Estimated project cost	16,373,000	
Appropriations to June 30, 1954	7,745,000	
Appropriations for fiscal year 1955	345,000	
Appropriations to date	8,090,000	50
Appropriations requested for fiscal year 1956	700,000	54
Balance to complete after fiscal year 1956	7,560,000	

PHYSICAL DATA

Relocations:

Gulf, Mobile & Ohio Railroad: Alter two bridges and approaches.

Missouri, Illinois Bridge and Belt Railroad: Alter approach to bridge.

Illinois Terminal Railroad: Alter three bridges and approaches.

Cleveland, Cincinnati Chicago & St. Louis Railroad: Alter two bridges and approaches.

Levees:

Average height: 18.4 feet.

Length: 20.1 miles.

Floodwalls:

Average height: 18 feet.

Length: 350 feet.

Pumping plants: Construction of 7 new pumping plants and alterations to discharge outlets at 2 existing pumping plants.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	0	June 1960.
Dams	100	Complete.
Levees	52	January 1960.
Floodwalls	100	Complete.
Pumping plants	57	January 1960.
Permanent operating equipment	0	January 1955.
Entire project	50	June 1960.

JUSTIFICATION

The project will protect approximately 13,700 acres, of which 7,500 acres is a highly developed industrial area located in the important cities of Hartford, Wood River, Roxana, and East Alton, Ill., and a portion of Alton, Ill. During the past 8 years, portions of the area have been inundated by the floods of 1943, 1944, and 1947. Total damages inflicted by these floods together with a flash flood that occurred on Wood River due to excessive rainfall in August 1946, is estimated at $1,320,000. Portions of the area were also inundated by the flood of 1951. However, the damages inflicted were not as great as those of previous floods, because of the advancement of construction on the project, but are estimated to be about $263,000. The average annual benefits to be derived from this project are estimated at $10,092,000.

Fiscal year 1956.—The requested amount of $700,000 will be applied to:

Continue construction of levee	$290,500
Complete construction on 1 plant and start construction on 1 new pumping plant	227,500
Engineering and design	117,000
Supervision and administration	65,000
Total	700,000

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The allocation of $700,000 for fiscal year 1956 is required to continue levee construction and to complete the Hawthorne Street pumping plant and start construction on Rand Avenue pumping plant.

Mr. RILEY. Here we have apparently increased the cost some $3,322,000 and you are raising the grade from 47 to 52 feet. Will you comment on that, please, and the reasons therefor?

Colonel STARBIRD. Yes. This is the third of the three levee units that I described or discussed in connection with the East St. Louis unit, where a change of grade was found necessary.

The increased cost can be attributed almost entirely to the raise in grade concerned.

Mr. RILEY. Is this another one of the reports that you have submitted to the Congress?

Colonel STARBIRD. The report covered all three of these units, sir.

Mr. RILEY. What about your railroad relocations? What is the situation there?

Colonel STARBIRD. On this project, sir, again we have worked the main-line levees. The railroad relocations have not yet been accomplished, and they are scheduled for accomplishment beginning in 1959.

Mr. RILEY. What is your position going to be in regard to raising these levees from 47 to 52 feet? Is that going to mean there will be other levees along the river that will have to be raised also?

Colonel STARBIRD. No, sir; no other levees are to be raised in connection with this. We transmitted, in this past year, to the Bureau of the Budget a report on the St. Louis side; in other words the project directly opposite all three of these units we have been discussing. We recommended after a most thorough study and model analyses the grade be established there at 52 feet. It was in large measure due to the detailed studies made in connection with the St. Louis side, where no levees now exist, that we reached the conclusion that the 52 feet should be the governing stage to secure the flow contemplated in the project document.

Mr. RILEY. This is another one of the projects that has a high engineering and supervision cost. Do the same reasons apply to this as to the others?

Colonel STARBIRD. The same basic reasons apply, sir.

Mr. RILEY. Colonel, your recent studies of the river have caused you in these instances to increase the levee from 47 to 52 feet.

Now, is not there a possibility your studies in other sections of the river would cause you to recommend the same action be taken in regard to them?

Colonel STARBIRD. Sir, it is a possibility in the future. However, we did consider the downstream levees that we are improving. Those levees are not authorized to provide the same degree of protection as are these three urban levees that we have discussed.

In the case of the urban levees, the protection is against the flood which has a $\frac{1}{200}$th probability of occurrence each year. The authorized plan for the downstream levees will give protection against the flood which has a probability of recurrence once every 50 years. The areas are agriculture in nature.

From further studies of these projects, made in connection with the upstream higher protection projects, it has been concluded that the present grades now planned will pass this flood which has a chance of

occurring once in every 50 years; in other words, a flood of 1,175,000 cubic feet per second instead of the 1,300,000 which is used for the much more vulnerable critical areas at the St. Louis-East St. Louis crossing.

Mr. RILEY. There is no plan, so far as you know at the present time, to recommend that these other levees be raised?

Colonel STARBIRD. There is none at the present time, sir.

CARRYING CAPACITY OF RIVER

Mr. RILEY. But it is not beyond the realm of possibility?

Colonel STARBIRD. No, sir; it is not beyond the realm of possibility. There has been a gradual worsening in the carrying capacity of the river. Part of that has been due to hydrologic factors; part has been due to development in the area. In view of the complexity of the situation, it is impossible to forecast exactly what is going to occur in the long-range future. We believe that the levees concerned are properly designed to carry the floods contemplated in the project document for a period of years.

Mr. RILEY. Is the work you have been doing up and down the river accentuating the necessity for raising the levees at other locations?

Colonel STARBIRD. Probably to some extent, sir, but in that connection, in general, there are levees already there.

We are improving these levees downstream. There is this situation, though, sir—those levees used to go out in the early floods. Large areas were flooded. As an example, I believe in the 1943 flood, of the 19 levee districts 15 went out. Naturally when you have levees go out a part of your flood is absorbed in the leveed area itself. There is some change in the rating curve probably induced by the improvements we have made, particularly for the very great floods, but after all the result is that areas that are presumably protected stay protected.

Mr. RILEY. In connection with that, could you give us any estimate as to the decreased carrying capacity of the river?

Colonel STARBIRD. I think that I can estimate it, sir. Realize that the flood in that locality is not carried within banks. Only a small portion of the flood is carried within banks. When you get the equivalent of this 1844 flood, it floods from high bluff to high bluff over a distance of about 6 miles in that narrow section of the river. We believe that a certain lesser grade in about 1865 would carry the same flood as this 52-foot flood at the present date, largely due to the fact there was easier overbank flow. There was probably also a little deeper river section there; however, we cannot tell that. But a stage of about 42 feet in 1865 would correspond with the 1,300,000 cubic feet per second during the 1844 flood, whereas a stage of about 52 feet would so correspond now.

I would like to say also when you reconstruct records, as was brought out by Mr. Rabaut, back to as early as 1865, you have many, many imponderables.

LOANS TO PROJECT

Mr. RILEY. I notice that funds for this Wood River Levee District have been borrowed 2 years in succession. Why was that necessary?

Colonel STARBIRD. That is correct. I think we had a borrow of about $120,000 last year. We increased that borrow in the neighborhood of

$363,000 this year. The reason was to push along certain items of work in a most expeditious and efficient manner.

Mr. RILEY. I am just wondering why the Congress did not grant the required funds when they found that you had to borrow the first time, or did you just not ask for them?

Colonel STARBIRD. We requested $345,000. We were granted $345,000. We have atempted to treat these projects as a unit, borrowing and loaning one from the other so as to bring the work along most effectively. The only work, I believe, which was materially expedited was that of the Hawthorne pumping station. We showed that as starting in the fiscal year 1955, but originally last year showed it expending only $27,000 during the year. We have accelerated that schedule. Of course, a pumping plant is not effective until we get it constructed. We now plan an expenditure of something over $160,000 during the fiscal year 1955 on this project.

Mr. RILEY. It raises a question though when you spend more than twice as much money as you asked for.

Colonel STARBIRD. Well, sir, in connection with what we asked for, we reported at that time that there would be a substantial carryover, and spending twice as much as we asked for comes about largely, in part, due to the carryover and in part due to the loan. Actually, we carried over a little less than $100,000.

Mr. RILEY. Apparently, though, in 1954 there was no estimated unexpended balance.

Colonel STARBIRD. I am wrong, sir. We carried over about $86,000. We did not have an estimated carryover.

PERRY COUNTY DRAINAGE AND LEVEE DISTRICTS, NOS. 1, 2 AND 3, MISSOURI

Mr. RILEY. We will now take up the Perry County Levee and Drainage Districts Nos. 1, 2, and 3.

For that you request $500,000.

We will insert in the record at this point pages 83 and 84.

(The matter referred to follows:)

PERRY COUNTY DRAINAGE AND LEVEE DISTRICTS NOS. 1, 2 AND 3, MISSOURI (CONTINUING)

Location.—This project is located in Perry County, Mo., and Randolph County, Ill., on the right bank of the Mississippi River between river miles 94 and 111 above the mouth of the Ohio River.

Authorization.—1936 Flood Control Act.

Benefit-cost ratio.—1.16 to 1.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$8,140,000	
Estimated local cash contributions	0	
Estimated project cost	8,140,000	
Appropriations to June 30, 1954	3,745,000	
Appropriations for fiscal year 1955	265,000	
Appropriations to date	4,010,000	49
Appropriations requested for fiscal year 1956	500,000	55
Balance to complete after fiscal year 1956	3,630,000	

PHYSICAL DATA

Levees:
Average height: 20 feet.
Length: 33.1 miles.
Relocations:
Raise approach of St. Louis-San Francisco Railway Co. at levee crossing.
Raise approach and bridge of St. Louis-San Francisco Railway Co. at levee crossing.

Status Jan. 1, 1955

	Percent	Completion schedule
Relocations	0	June 1959.
Levees	47	June 1959.
Permanent operating equipment	100	November 1954.
Entire project	48	June 1959.

JUSTIFICATION

The project will provide protection for approximately 26,050 acres of highly productive agricultural land. The towns of Claryville, Belgique, and McBridge, Mo., are within these districts. The 1943 flood inundated the entire area through a crevasse in a portion of the levee which had not been reconstructed, causing approximately $1,686,000 damages. Extensive flood-fighting work was required in 1944, 1947, and 1951 to keep the levee system intact. The average benefits for the project are estimated to be about $363,900.

Fiscal year 1956.—The requested amount of $500,000 will be applied to—

Levees	$441,000
Engineering and design	17,000
Supervision and administration	42,000
Total	500,000

The funds requested in fiscal year 1956 are required to complete an existing levee embankment contract, and continue construction on a levee embankment contract to be started in fiscal year 1955. In addition to continuing construction of levee embankment a contract will be let to place service roads on completed levee embankment and necessary borrow pit corrective measures required to protect existing levees will be undertaken.

Mr. RILEY. Apparently this will just a little more than half complete the work. Is there any problem in connection with this work?

Colonel STARBIRD. There is one problem, sir, and that is that the rights-of-way are not fully cleared on the next section to be undertaken. We have a report from the district engineer, a very recent one, stating that the local interests believe that they are going to be organized to go ahead with this work on schedule.

Mr. RILEY. There is no opposition to it?

Colonel STARBIRD. No opposition, sir. It is a question of agreeing to the amount of assessment.

Mr. RILEY. You have a small estimated unobligated balance for the end of the year?

Colonel STARBIRD. Yes; $13,300.

Mr. DAVIS. I am not sure that I understand from the map what is accomplished here by bringing this around and making practically a loop of it.

Colonel STARBIRD. Sir, that whole area has the remnants of an old slough behind it, and what we are doing is protecting the back side against a flooding that could occur from that slough.

Mr. DAVIS. Whenever you have high water on the Mississippi——

Colonel STARBIRD. It comes in behind it. Furthermore, you have runoffs coming in from the hills behind it. That takes care of both.

Mr. DAVIS. How much length is involved in all the levee here?

Colonel STARBIRD. The total length is about 33 miles.

CORALVILLE RESERVOIR, IOWA

Mr. RILEY. The next project is the Coralville Reservoir in Iowa.

Without objection we will insert pages 71 through 73 in the record at this point.

(The matter referred to follows:)

CORALVILLE RESERVOIR, IOWA (CONTINUING)

Location.—On the Iowa River, a tributary of the Mississippi River, at mile 83.3 above mouth, and about 4 miles north of Iowa City, Iowa. The reservoir extends into Johnson and Linn Counties, Iowa.

Authorization.—1938 Flood Control Act.

Benefit-cost ratio.—2.1 to 1.0.

Summarized financial data

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	$18,520,000	
Estimated local cash contributions	0	
Estimated project cost	18,520,000	
Appropriations to June 30, 1954	6,010,000	
Appropriations for fiscal year 1955	1,750,000	
Appropriations to date	7,760,000	42
Appropriations requested for fiscal year 1956	4,500,000	66
Balance to complete after fiscal year 1956	6,260,000	

PHYSICAL DATA

Dam:

Type: Earth embankment with control structure having a conduit through the embankment.

Height: 100 feet (above streambed).

Length: 1,400 feet (at top of dam).

Spillway:

Type: Concrete chute, with ogee control, in right bluff.

Capacity (design flood): 244,000 cubic feet per second.

Reservoir capacity:

	Acre-feet
Flood control	475,000
Conservation	17,000
Total	492,000

Status as of Jan. 1, 1955 (physical)

	Percent	Completion schedule
Lands and damages	63	December 1957.
Relocations	0	October 1957.
Reservoir: clearing and erosion control	0	December 1957.
Dam		Closure: Commence July 1956; complete December 1957.
Portion of embankment (1st stage construction)	100	
Outlet works (2d stage construction)	100	
Spillway and remainder of embankment (3d stage construction)	0	December 1957.
Wildlife facilities (preservation)	0	October 1957.
Road, entrance (1st stage construction)	100	
Road, entrance (3d stage construction)	0	May 1956.
Channels (3d stage construction)	0	June 1956.
Recreation facilities	0	December 1957.
Buildings, grounds, and utilities:		
Operational building, water supply system, and telephone line (1st stage construction)	100	
Operators' quarters, grading, and landscaping	0	Do.
Permanent operating equipment	0	Do.
Entire project	33	Do.

JUSTIFICATION

The project is a unit of the comprehensive plan for the upper Mississippi River Basin. It will provide substantial reduction of average annual flood damages on 31,000 acres of land in the Iowa River flood plain below the dam and 326,000 acres in the Mississippi River flood plain below the mouth of the Iowa River. Included within or adjacent to the agricultural areas and likewise benefitted are 7 railroad crossings over the Mississippi River, 1 rail line parallelling the Mississippi River, and 6 railroad crossings over the Iowa River. Additionally, 6 highway crossings and 2 paralleling highways along the Mississippi River and 9 major highway crossings over the Iowa River will be benefitted. On the Iowa River, urban centers of Coralville (population 977) and Iowa City (population 27,212) will be benefitted by the project. At Coralville, a combination steam generating and hydroelectric plant, several commercial establishments and numerous residences will receive a major degree of protection. At Iowa City, the reservoir will provide substantial protection to the city water plant and several commercial facilities, as well as the State University of Iowa water plant, heating and light plant, the library, the Iowa Memorial Union, the university theater, and several other educational buildings. On the Mississippi River, important benefits will accrue to industrial facilities in the towns of Fort Madison, Burlington, and Keokuk, Iowa; Quincy, Ill.; and Hannibal, Mo. The project will also provide incidental benefits from conservation and recreation.

Fiscal year 1956.—The requested amount of $4,500,000 will be applied to:

Continue acquisition of lands	$850,000
Continue relocation work:	
Roads	1,186,000
Railroads	660,000
Utilities and other structures	727,000
Continue construction of dam and appurtenances	644,000
Engineering and design	70,000
Supervision and administration	363,000
Total	4,500,000

A continuing contract for the last stage construction of the dam is planned for award early in the spring of 1956. This work is programed so as to properly time its completion in relation to relocation work, to permit placing the dam in operation, and to provide flood protection at the earliest practicable date. Relocation work scheduled for fiscal year 1956 must be carried out to permit completion by the time the project otherwise is ready for operation, and to avoid damage to such facilities after the dam closure is effected. The land acquisition programed for budget fiscal year 1956 is necessary in order to provide access as required for the relocation construction scheduled, to provide availability of the reservoir lands to permit their being cleared to the extent necessary, and to obtain vacation of the reservoir lands so that the project may be placed in beneficial use when the dam is completed.

LAND TAKING

Mr. RILEY. The planning report shows a reduction of $400,000 in this project due to the application of the land policy. Would you comment on that please?

Colonel STARBIRD. Our current land policy is to leave to the ownership of the local interests the maximum feasible land. The conservation pool, or the permanent pool, and a slight distance above is taken in fee, but the remaining lands are taken in easements.

The current estimate for this reservoir is that a total of 24,280 acres will be taken in fee but approximately 9,550 acres will be taken in easements.

Mr. RILEY. Has there been any reaction to this change on this project?

Colonel STARBIRD. As far as I know; no, sir.

STATUS OF CONSTRUCTION

Mr. RILEY. You are requesting here some $405,000 to continue the construction, and you estimate that the dam will be closed during the fiscal year, this fiscal year. What is the situation in regard to that?

Colonel STARBIRD. Sir, we would continue through the fiscal year 1955 and early 1956 in effecting the necessary major relocations. We would initiate in February of 1956, a contract for the next phase of the earthwork which would be the phase within which closure would be made. Closure would actually start by the first of July. I should say "about the first of July" because it will depend upon selecting the probable low water period which will come in the middle of the summer.

Mr. RILEY. It is somewhat over a year away, that you contemplate closure?

Colonel STARBIRD. That is correct, sir.

Mr. RILEY. Does that constitute a delay in your original plans?

Colonel STARBIRD. It is a delay in the possible closure, sir. It could have been closed approximately a year earlier.

Mr. RILEY. Did you run into some problem there?

Colonel STARBIRD. No, it is in the requirement for funds to close earlier. We would have to make expenditures of substantially the amount contemplated now for July 1, 1956, prior to July 1, 1955. I say "substantially." It is not quite that much.

Mr. RILEY. I notice here in your planning report issued in January of 1955 that a supplemental design on this project was estimated to be about 28 percent complete. Will that further delay the project?

Colonel STARBIRD. No, sir.

Mr. RILEY. Just what is that?

Colonel STARBIRD. Sir, the general design memo which establishes the details of design has been completed. We have various special design memos that cover particular features. We even have design memos for such things as public use of the reservoir. The overall specific design memos have been 28 percent complete only. Now, the design memo on the next phase of the earthwork, which phase would not be awarded until February, as I mentioned—and I do not have the exact figure on that——

Mr. RILEY. Do you think that there will be any delay on account of it?

Colonel STARBIRD. I do not think there will be any delay on account of it, sir. It will be completed in advance of the actual contract award, of course, which is scheduled for February of 1956.

Mr. RILEY. The committee wants to be assured these plans will be completed in time to make use of the money that you are asking for and to get a competent bid.

Colonel STARBIRD. The latest report that I have from the field is within the last month, and they state that the plans and specifications will be completed by February 1, 1956, on stage 3 of the earthwork.

Mr. RILEY. 1955 or 1956?

Colonel STARBIRD. 1956.

Mr. RILEY. When is your best construction period?

Colonel STARBIRD. I think that I had better insert the exact status of the design on that in the record.

(The matter referred to is as follows:)

Plans and specifications for stage 3, which includes the final earthwork for the project, are well advanced and completion thereof is scheduled for August 15, 1955.

RELOCATION

Mr. RILEY. In regard to this project, apparently there are a number of relocations, relocation problems.

Colonel STARBIRD. I would like to say that the form 2–A shows that the planning for stage 3 of the earthwork will be completed in August of 1955.

With respect to negotiations on the various relocations, sir, for those that are scheduled in this current fiscal year, the work on relocating Highway 218 and the C. R. I. and P. was actually advertised on the 1st of April. That on route Y, a county road, was awarded on the 28th of February. That on routes R and I was awared on the 15th of March. That on route E at Swisher Creek, also a county road, agreement has been reached, and it is scheduled for award in July.

On routes E and O agreement has been reached, and the award is scheduled for May.

On the C. R. & I. C. railroad relocation, agreement has been reached, and it is to be awarded in June.

In the fiscal year 1956 we are to continue the highway awards that I already mentioned and continue the two railroad awards.

The work on the Lake McBride roads is not scheduled for initiation until March 1956, and the negotiations are now underway. The last railroad relocation, well upstream, is also scheduled for initiation late in the year. Negotiations are still underway.

STATUS OF FUNDS

Mr. DAVIS. Last year you asked for $2,300,000. You got $1,750,000. You ended up with something close to $600,000 unobligated, which means that something over $800,000 less than you felt you were going to need was actually used. What is the main reason for that?

Colonel STARBIRD. Sir, I cannot answer the main reason. I would like permission to insert that in the record. May I go off the record a second?

(The matter referred to follows:)

CORALVILLE RESERVOIR

The budget allowance for fiscal year 1955 was in the amount of $2,300,000. The appropriation of only $1,750,000 required that the original program of work be rescheduled. This necessitated a cutback in the land acquisition program and the deferral of initiation of construction on some of the relocation work.

With regard to the anticipated carryover of approximately $600,000 from the appropriated funds, it was found necessary to further delay initiation of the relocations and to defer the start of stage III of the dam construction. The delay in relocations was due to the fact that renewal of negotiations following the period of inactivity on this project, required a longer period of time than originally anticipated. This, in turn, required rescheduling of stage III of the dam construction, since it was considered advisable to provide for completion of all relocation agreements prior to start of the dam construction. In addition, reduced expenditures resulted from receipt of favorable bids.

(Discussion off the record.)

Mr. DAVIS. There is an awful lot of separate negotiations and tentative agreements that seem to be in the works here, all of which would have to work out about on schedule if you are going to do as much in 1956 as you contemplate doing, is that not so?

Colonel STARBIRD. Yes, they have to work out. As I mentioned, a large number of them have already been awarded, or the agreement is already finalized. Also, as I mentioned, the main work is a continuation of awards to be made in the fiscal year 1955, or at the turn of the fiscal year 1955 into fiscal year 1956.

CAPE GIRARDEAU AND VICINITY, MISSOURI

Mr. RILEY. The next project is Cape Girardeau and vicinity, Missouri. Currently that is a new start. Without objection we will insert pages 78 and 79 in the record at this point.

(The matter referred to follows:)

CAPE GIRARDEAU AND VICINITY, MISSOURI (REACH NO. 2 ONLY)
(NEW START)

Location.—This project is located in Cape Girardeau County, Mo., on the right bank of the Mississippi River between river miles 51.6 and 52.9 above the Ohio River.

Authorization.—Flood Control Act, May 17, 1950.

Benefit-cost ratio.—1.82 to 1 (reach 2 only).

Summarized financial data (reach No. 2 only)

	Amount	Accumulated percent of estimated Federal cost
Estimated Federal cost	[1] $4,540,000	
Estimated local cash contributions	255,000	
Estimated project cost	4,795,000	
Appropriations to June 30, 1954	198,000	
Appropriations for fiscal year 1955	0	
Appropriations to date	198,000	4
Appropriations requested for fiscal year 1956	750,000	21
Balance to complete after fiscal year 1955	3,592,000	

[1] Total Federal cost of project, $8,010,000. (Reaches 1, 3, and 4 deferred.)

PHYSICAL DATA (REACH NO. 2 ONLY)

Relocations: Road relocation: Relocation of Main Street bridge and approaches over Sloan's Creek.
Levees:
Average height: 18 feet.
Length: 3,800 feet.
Floodwalls:
Average height: 18 feet.
Length: 4,300 feet.
Pumping plants: 2 pumping plants.

Status Jan. 1, 1955, reach No. 2 only

	Percent	Completion schedule
Relocations	0	June 1958.
Levees	0	June 1957.
Floodwalls	0	June 1958.
Pumping plants	0	Do.
Entire project (reach 2 only)	0	Do.

Reaches 1, 3 and 4 construction deferred until after 1959.

JUSTIFICATION

The project upon completion will provide protection to one of the largest industrial sections in southeast Missouri. Located within reach 2 is the main business district of Cape Girardeau and the Missouri Utilities Co. electric powerplant. This powerplant is the source of electrical power for the city, its residential suburbs, and surrounding towns, and communities. Also, within reach 2 is a sand and gravel plant and a large shoe factory. Average annual benefits, all flood control, are estimated to be $335,000 for reach 2 only.

Fiscal year 1956.—The requested amount of $750,000 plus contributed funds in amount of $255,000 will be applied to:

Construction of levees	$708,000
Construction of floodwall	150,000
Engineering and design	75,000
Supervision and administration	72,000
Total	1,005,000

The funds requested for fiscal year 1956 will provide partial protection for the light and powerplant, and the shoe factory. This protection will consist of levee embankment, floodwall, including outlet structures and sewers.

Mr. RILEY. There were no funds appropriated last year for this project, were there?

Colonel STARBIRD. No, sir.

Mr. RILEY. You are requesting $750,000 for this year to proceed with reach 2; is that correct?

Colonel STARBIRD. Reach 2 is that reach proposed for immediate construction. It is the reach that contains most of the business and industry of the city.

Mr. RILEY. Will that be enough to complete that reach?

Colonel STARBIRD. No, sir. The estimated cost of completing the reach is $4,540,000. This would initiate construction in the reach. It would accomplish the portion shown in red on our map, sir.

Mr. RILEY. What is the status of the court action to give levee districts authority to make assessments to cover local costs?

Colonel STARBIRD. We have assurance from the lawyer that not only the lands and rights-of-way but also the cash contribution required will be available.

I would like to insert in the record the answer to the specific question.

Mr. RILEY. Yes; we would like to have the justification for that.

Colonel STARBIRD. Yes.

(The matter referred to follows:)

STATUS OF COURT ACTION TO GIVE LEVEE DISTRICTS AUTHORITY TO MAKE ASSESSMENTS TO COVER LOCAL COSTS

The levee districts, under Missouri law, must obtain approval from the applicable State court of the assessment role before additional taxes can be levied. After approval, bonds can be issued. Local interests have not made application to the courts pending appropriation of Federal funds in order to obviate increased taxes. There is no known opposition. The minimum time required to complete all necessary court action including application to the court, filing and publishing intentions, and appeals of opposition (if any) is estimated to be 90 days. City officials have indicated that application to the courts would be made immediately following favorable action by the House of Representatives with regard to providing appropriations for initiation of construction. No difficulties in securing rights-of-way are anticipated.

Mr. RILEY. Is there any opposition?

Colonel STARBIRD. Not as such. There is a desire that other sections be completed, as well as section 2, particularly that section 1 be completed.

Mr. RILEY. Would it be better engineering and construction to move all costs of this project forward on a coordinated plan rather than reach 2?

Colonel STARBIRD. No; it would make little difference. In any case, we would have to undertake it in steps. Reach 1 has been deferred because it is an individual reach, a separate entity. It is actually the area in which certain individuals live that work within reach 2. However, reach 2 can be completed unto itself, and reach 1 is not economically justified.

As far as reaches 3 and 4 are concerned, neither reach has organized as yet to give the necessary support.

Mr. RILEY. Will reach 2 be effective in case the others are not organized?

Colonel STARBIRD. Yes. As you can see from the map, the flooded area, that shown in the green dots, in reach 2, ties in very closely to high grounds. There is need there for closure structure to let the railroad pass in and out, if reach 3 is not completed.

Mr. RILEY. The planning report shows that the Federal Government will relocate a bridge at a cost of $131,000. Will the city of Cape Girardeau make a contribution toward that?

Colonel STARBIRD. Not toward that. This particular project document was one developed as of 1948 and 1949. The elements of cooperation were a little bit different from the standards as prescribed in the 1936 act. In this case, track relocation and modifications were to be done by local interests.

In this particular case, the bridge concerned was to be moved from one location to another location and the recommendation in the project document did not specifically cover that, but the cost as shown to the Government includes the modification of that bridge. The cost concerned, which you have mentioned is on that bridge.

I might mention, in connection with this project that the local people wanted a change in the project to put in a wall instead of levee in certain sections. We believe that the levee was engineeringly feasi-

ble, but we recognize the advantages to the local people of a wall. We agreed to put in the wall, but under the condition that they pay the difference and that accounts for the cash contribution required in this project, the contribution of $255,000.

Mr. RILEY. When was this project first authorized?

Colonel Starbird. It was authorized by the Flood Control Act of 1950.

Mr. RILEY. Did the authorization cover 4 reaches or 3?

Colonel STARBIRD. The authorization covered all four reaches.

Mr. RILEY. Did you ask an appropriation last year, or is this the first year that you have asked for construction money?

Colonel STARBIRD. There was no request in the budget last year.

Mr. RILEY. Have you ever asked for any construction money on this project?

Colonel STARBIRD. I understand it was in the first of the budget estimates of the fiscal year 1954.

Mr. DAVIS. Can you give us assurance at this time, Colonel, that the benefit-cost ratio in the other three reaches standing by themselves is feasible?

Colonel STARBIRD. No, I cannot, on the other three reaches. On reach 1, it is substantially below unity. On 1 of the other 2 reaches, I cannot remember which, it is below unity. However, neither of those other two reaches have organized to give the necessary local cooperation.

The portion of the project recommended for start and completion is reach 2, which is a separate entity and gives protection to the main portion of business district in the city.

Mr. DAVIS. Who is putting up the $255,000?

Colonel STARBIRD. The city is putting up the $255,000.

Mr. DAVIS. Do you know whether a previous request of money was for reach 2, or was it for other portions on the river?

Colonel STARBIRD. I believe it was for the whole thing at that time.

Mr. DAVIS. That is all I have, Mr. Chairman.

Mr. RILEY. How important is this project, Colonel?

Colonel STARBIRD. It is a very important project. This area has had repeated floods. It had floods in 1927, which caused $200,000 damage; in 1943, $580,000 damage; in 1944, $350,000 damage; in 1947, $710,000 damage; in 1951, $910,000 damage; and 1952, $275,000 damage.

That damage was not all in this particular reach. However, a major portion of the damage was, in each case, in reach 2.

Mr. RILEY. Does the Corps contemplate recommending proceeding on the other reaches if the local interests cooperate?

Colonel STARBIRD. If the local interests come along and if the section concerned has a feasible—that is, favorable—benefit-to-cost-ratio or there are other urgent circumstances that necessitates putting that particular reach in an active category.

Mr. RILEY. That has not been determined as yet?

Colonel STARBIRD. We carry them as deferred now.

Mr. RILEY. Will that necessitate further study?

Colonel STARBIRD. We have a definite project report on the whole project. It will be necessary to bring along the plans and specifications and if there is substantial delay before it can become active, then there will be some refinements necessary in the development of the project report.

Mr. RILEY. The question that arose in my mind, and there seems to be some question involved here, as to the cost-benefit ratio in these other reaches——

Colonel STARBIRD. There is a question at the present time for two of the reaches. However, with respect to the particular reach 2 there is no question; the benefit-to-cost ratio given is 1.8 to 1, considering the particular benefit ratio for that particular reach.

For the overall project, if it is built now, the benefit-to-cost ratio would be about 1.23. But there is no question on the benefit-to-cost ratio on this particular reach No. 2.

OPERATION AND MAINTENANCE, CORPS OF ENGINEERS

Mr. RILEY. We will take up next "Operation and maintenance," and without objection we will insert in the record pages 87 through 89 of the justifications.

(The matter referred to follows:)

UPPER MISSISSIPPI BASIN

JUSTIFICATION OF ESTIMATE—OPERATION AND MAINTENANCE, GENERAL, FISCAL YEAR 1956

1. Navigation

(*a*) *Channels and harbors.*—The work to be accomplished under this activity consists of maintaining the navigation channels by means of dredging, snagging, operation of navigation structures, and repairing channel stabilization works; and periodic inspections and surveys to determine the condition of the projects for programing purposes and providing navigation interests with adequate information on existing channel conditions; all as authorized in the laws adopting river and harbor projects.

The budget estimate of $1,729,000 for fiscal year 1956 is required for essential maintenance work on 3 channel and harbor projects named in the list which follows. The projects listed have been subjected to an economic analysis and determined that continuing maintenance is justified. The amount of funds appropriated in recent years for this activity has not been sufficient to provide for the adequate and timely maintenance of all justified projects and has resulted in a substantial backlog of work, particularly repair of stabilization works and the maintenance of shallow-draft navigation channels. This condition continues to exist.

Tentative allocation, fiscal year 1956

Illinois: Mississippi River between Ohio and Missouri Rivers including Chain of Rocks	$1,700,000
Minnesota:	
Minnesota River	8,000
St. Croix River, Minn. and Wis.	20,000
Condition surveys	1,000
Total channels and harbors	1,729,000

(*b*) *Locks, dams, reservoirs, and canals.*—The estimate of $6,610,000 for fiscal year 1956 provides for the operation and ordinary maintenance of the locks and dams, essential channel work, and the most urgent repair of the structures at 4 projects. The rehabilitation work includes such items as lock gate repairs and overhaul, painting of movable dam parts, valve rehabilitation, and navigable dam parts replacement. The estimate contemplates operation of the projects with the utmost economy consistent with the importance of the waterways to the national economy.

These projects comprise one of the major inland waterway arteries of the United States, transporting about 6 billion ton-miles of commerce annually. Their continuous operation and proper maintenance is necessary to the general economy and national defense.

Tentative allocation, fiscal year 1956

Illinois:	
Illinois and Mississippi Canal	$75,000
Illinois Waterway	1,669,000
Mississippi River between Missouri River and Minneapolis, Minn.	4,800,000
Minnesota: Reservoirs at headwaters of Mississippi River	66,000
Total locks, dams, reservoirs, and canals	6,610,000
Total navigation	8,339,000

2. Flood control

(*a*) *Reservoirs.*—The budget estimate of $40,000 provides for the operation and ordinary maintenance of 2 flood-control reservoirs in the Upper Mississippi Basin during fiscal year 1956, and nondeferrable rehabilitation work. The amount requested in fiscal year 1956 is approximately $6,000 more than the amount available in fiscal year 1955 and is the minimum necessary for nondeferrable rehabilitation work and for adequate and efficient operation and maintenance of the projects.

Tentative allocation, fiscal year 1956

Illinois: Farm Creek Reservoir	$20,000
Minnesota: Lac Qui Parle Reservoir	20,000
Total flood control reservoirs	40,000
(*b*) *Other (including channel-improvement projects, miscellaneous maintenance items and inspections).*—The budget estimate of $22,000 provides for inspections of 48 completed projects within the basin.	
Inspection of completed works	22,000
Total flood control	62,000
Grand total upper Mississippi Basin	8,401,000

Mr. RILEY. I notice here you are asking for $8,401,000 for operation and maintenance in 1956. Would you give us just a very brief summary of how you expect to use this money?

Mr. GURNEE. Yes, sir. Of the $8,401,000, $1,729,000 is for channel and harbor navigation. The major portion of that amount is, as you will note, on the Mississippi River, between the Ohio and Missouri Rivers, a reach of the river which we maintain every year. And the maintenance requirements are somewhat higher this year than they have been in the past year or two, because of the generally lower regimen of the river, due to hydrological changes.

We are proposing to spend $900,000 of this $1,700,000 on structures, some of which are deferred items of rehabilitation, pending completion of the Chain of Rocks lock.

The other two minor projects on which we propose channel and harbor maintenance are the Minnesota and St. Croix Rivers; they were not in a maintenance status last year because there was no need for maintenance.

On locks, dams, and canals, the major item is the Mississippi River between the Missouri River and Minneapolis, Minn., and of the $4,800,000 that we are requesting, $2,650,000 is for rehabilitation of structures; and $2,150,000 is for ordinary operation and maintenance.

On the Illinois Waterway, the next major item, we are asking somewhat less money than we had for the last year for the operation of the seven locks and the maintenance work; it is one of the more important waterways and carries over 20 million tons of traffic each year.

The funds we are asking on the Illinois and Missouri canals is entirely for custodial maintenance. That is one of the locks, dams and canals that we are attempting to dispose of. This committee, I believe,

is aware of the fact that there is legislation, or negotiations, pending for the State of Illinois to take over that project.

The item for reservoirs at headwaters of Mississippi River, is for the operation of the five reservoirs which were pointed out in the opening statement, and which are operated to supplement the lower-water flow in the upper Mississippi.

Under "Flood control, reservoirs," we have only 2 projects, 1 consisting of 2 reservoirs for the protection of the city of Peoria, and the Lac Qui Parle Reservoir, located on the Minnesota River, which is upstream from Montevideo. We are asking also for $22,000 under "Flood control, other," for the inspection of 48 completed local protective projects in this basin.

Mr. RILEY. Do you have any unobligated funds estimated to be carried over?

Mr. GURNEE. We, at the present time, do not expect to have any unobligated balances carried over. We are in the process right now of adjusting funds between projects. We have a greater demand than we have funds available for maintenance this year.

Mr. RILEY. Do you think you will have any excess funds?

Mr. GURNEE. We undoubtedly will end up with a small balance for administrative reasons, rather than necessity. We find it impossible to meet all of the demands in the last month.

Mr. DAVIS. What did you allocate on this Mississippi River between the Ohio and Missouri Rivers, including the Chain of Rocks last year?

Mr. GURNEE. The actual allocation was $1,361,000.

Mr. DAVIS. How did that compare with what you listed in your tentative allocation?

Mr. GURNEE. May I add that for the record, Mr. Davis, as I do not have the figures available?

(The information requested follows:)

1,274,000.

Mr. DAVIS. On the Minnesota and the St. Croix Rivers, along the boundaries there; the projects are listed as navigation projects; is there actually navigation on these two rivers?

Mr. GURNEE. Yes, sir. On the Minnesota River last year we had 435,000 tons; on the St. Croix River, 7,113 tons. They are both shallow-draft channels. The Minnesota River is a 4-foot channel, on the Federal project; it is maintained intermittently by local interest at 9 feet. But we remove snags and shoals to the 4-foot depth.

There was no maintenance on that project last year or for 2 or 3 years, as I recall.

On the St. Croix River, it is a 9-foot channel of varying widths: 52 miles long, I believe, that we maintain. And our primary maintenance activity consists of clearing snags resulting from trees which fall into the channel.

Mr. DAVIS. As a practical matter, how would they be able commercially to make use of a 4-foot channel?

Mr. GURNEE. Most of the traffic on the Minnesota River was coal and grain; coal is carried upstream and grain carried downstream, in barges. On the St. Croix River, again, most of the commerce is coal, with some use of the river for recreational purposes. The commercial traffic was 7,113 tons last year, mostly in coal.

COLONEL STARBIRD

Mr. RILEY. Colonel Starbird, I understand that we are going to lose you temporarily?

Colonel STARBIRD. I am going to another assignment that will come about the middle of July, Mr. Chairman.

Mr. RILEY. Are you going to be back with us however, next year?

Colonel STARBIRD. I have no way of knowing.

Mr. RILEY. The committee is very grateful to you for the testimony which you have given, and the straightforward manner in which you have presented the request, and for the very fine cooperation you have given us. We certainly hope for you every success in your new assignment, and hope that you will be returned some day to this, or a similar, assignment.

Colonel STARBIRD. Thank you very much. I have always been impressed by the fairness with which the committee goes into matters, not only here but on the road.

Mr. DAVIS. Is this your third year before us, Colonel?

Colonel STARBIRD. No, this is only the second.

Mr. DAVIS. You did not sit in with the presentation of the testimony before that?

Colonel STARBIRD. Not on the House side. I came back as they were finishing up last year.

Mr. DAVIS. Who will be your successor?

Colonel STARBIRD. It will be Lieutenant Colonel Penney, an officer who is about to be made a colonel. He has been attached to SHAFE headquarters in Europe. He has a very outstanding reputation in the Corps of Engineers.

(Off the record discussion.)

Mr. DAVIS. Well, you can put on the record that we are sorry to see you leave, Colonel Starbird.

Colonel STARBIRD. Thank you.

Mr. RILEY. Thank you very much, gentlemen, for your presentation.

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APPENDIX

Allocation of Costs to Power, Main Stem Missouri River Projects

Note.—The following table was submitted in response to interrogation beginning on page 305:

Main stem Missouri River projects—Approximate allocation of costs to power [1]

Project	Installation (kilowatts)	Project first cost		Annual charges [2]	
		Total	Allocated to power	Total	Allocated to power
Fort Peck:					
Initial	85,000	$133,800,000	$60,400,000	$5,529,000	$2,492,000
Ultimate	165,000	158,300,000	84,900,000	6,743,000	3,706,000
Garrison:					
Initial	240,000	279,000,000	147,700,000	11,687,000	6,257,000
Ultimate	400,000	295,000,000	163,700,000	12,355,000	6,925,000
Oahe:					
Initial	170,000	321,000,000	171,700,000	13,464,000	7,371,000
Ultimate	425,000	356,800,000	207,500,000	14,849,000	8,756,000
Big Bend:					
Initial	120,000	71,500,000	71,500,000	3,158,000	3,158,000
Ultimate	120,000	71,500,000	71,500,000	3,158,000	3,158,000
Fort Randall:					
Initial	320,000	195,000,000	139,900,000	8,425,000	6,042,000
Ultimate	320,000	195,000,000	139,900,000	8,425,000	6,042,000
Gavins Point:					
Initial	100,000	53,000,000	40,200,000	2,572,000	1,919,000
Ultimate	100,000	53,000,000	40,200,000	2,572,000	1,919,000
Total initial	1,035,000	1,053,300,000	631,400,000	44,835,000	27,239,000
Total ultimate	1,530,000	1,129,600,000	707,700,000	48,102,000	30,506,000

[1] Advance information from data currently being developed in field offices, and subject to change as studies progress.

[2] Annual charges shown include charges for interest and amortization of entire investments (including interest during construction) at 2½ percent over a 50-year period, and average annual operation, maintenance and replacement cost. Economic cost for taxes foregone are not included.

Southwestern Power Administration

Note.—The following information was submitted in response to interrogation by the committee on page 78 of part 1 (Southwestern Power Administration) of the hearings on the central section:

Table 1.—*Summary project information, certain costs, and revenue by fiscal years*

Fiscal year	Estimated present investment [1]	Operation and maintenance costs [1]	Installed capacity, kilowatts [1]	Peak generation, kilowatts [1]	Net generation, kilowatt-hours [1]	SPA operation and maintenance costs [2]	Revenue
1950	$101,602,000	$350,029	157,000	156,000	443,004,770	$254,919	$2,034,948
1951	101,602,000	431,837	157,000	166,000	491,557,240	556,132	2,279,739
1952	101,602,000	426,116	157,000	170,000	524,012,130	1,014,048	2,630,322
1953	260,639,000	496,407	380,750	339,000	569,336,500	1,289,305	2,948,840
1954	283,079,000	887,473	426,000	443,000	780,612,340	2,021,835	4,773,536
Total		2,591,862			2,808,522,980	5,136,239	14,667,705
1955 (estimated) (worst drought of record)							[3] 3,900,000
1956 (estimated)							6,300,000
Estimated ultimate project investment not available to SPA.							

[1] For details see table 2.

[2] For details see table 3.

[3] Present estimated revenue for fiscal year 1955 is below actual revenue for 1954 and previous estimate for 1955 for 2 reasons: (1) Blakely Mountain project was originally scheduled for operation in November 1954. It is now scheduled for operation in August 1955; and (2) due to prolonged drought about 220,000,000 kilowatt-hours of energy were deferred and not paid for. In event we can repay this energy the revenue will be reflected in future years.

TABLE 2.—*Details of project information*

FISCAL YEAR 1950

Project	Estimated present investment	Operation and maintenance costs	Installed capacity, kilowatts	Peak generation, kilowatts [1]	Net generation, kilowatt-hours
Denison	$60,196,000	$211,445	70,000	67,000	174,554,000
Norfork	28,700,000	138,584	70,000	72,000	265,392,500
Narrows [2]	12,706,000	(3)	17,000	17,000	3,058,270
Total	101,602,000	350,029	157,000	156,000	443,004,770

FISCAL YEAR 1951

Denison	$60,196,000	$159,509	70,000	73,000	254,586,000
Norfork	28,700,000	149,577	70,000	76,000	207,583,100
Narrows	12,706,000	122,751	17,000	17,000	29,388,140
Total	101,602,000	431,837	157,000	166,000	491,557,240

FISCAL YEAR 1952

Denison	$60,196,000	$158,194	70,000	76,000	142,560,000
Norfork	28,700,000	139,455	70,000	77,000	338,925,200
Narrows	12,706,000	128,467	17,000	17,000	42,526,930
Total	101,602,000	426,116	157,000	170,000	524,012,130

FISCAL YEAR 1953

Denison	$60,196,000	$135,000	70,000	74,000	92,408,000
Norfork	28,700,000	116,178	70,000	78,000	126,796,500
Narrows	12,706,000	115,524	17,000	17,000	47,418,900
Bull Shoals [4]	76,329,000	94,965	160,000	132,000	270,242,000
Fort Gibson [5]	42,000,000	34,740	33,750	26,000	32,104,100
Whitney [6]	40,708,000		30,000	12,000	367,000
Total	260,639,000	496,407	380,750	339,000	569,336,500

FISCAL YEAR 1954

Project	Estimated present investment	Operation and maintenance costs	Installed capacity kilowatts	Peak generation kilowatts	Net generation, kilowatt-hours
Denison	$60,196,000	$231,030	70,000	82,000	192,431,000
Norfork	28,700,000	135,196	70,000	78,000	132,752,800
Narrows	12,706,000	109,550	17,000	17,000	17,774,010
Bull Shoals	76,329,000	177,557	160,000	160,000	334,661,000
Fort Gibson [7]	42,000,000	92,976	45,000	49,000	39,497,200
Tenkiller Ferry [8]	22,440,000	45,951	34,000	36,000	43,337,900
Whitney	40,708,000	95,213	30,000	21,000	20,158,430
Total	283,079,000	887,473	426,000	443,000	780,612,340

PROJECTS UNDER CONSTRUCTION

Blakely Mountain	$30,800,000		75,000		
Table Rock	68,700,000		100,000		
Total	99,500,000		175,000		
Total all projects	382,579,000		601,000		

[1] Noncoincidental.
[2] Tested only. Placed in commercial operation July 1950.
[3] Operation and maintenance costs included in project cost.
[4] 2 units placed in commercial operation September 1952; third unit in December 1952; fourth unit June 1953.
[5] 3 units placed in commercial operation; 2 units March 1953; third unit May 1953.
[6] Tested only. Operation and maintenance costs included in project cost.
[7] Fourth unit placed in commercial operation September 1953.
[8] First unit placed in commercial operation November 1953; second unit December 1953.

TABLE 3.—*Transmission charges, service charges, and cost of purchased power*

Fiscal year	Transmission operation and maintenance	General administration	Power marketing	Service charge	Purchased power	Total
1950	$91,045	$235,874				$254,919
1951	384,115	62,357	$109,660			556,132
1952	492,476	334,645	119,045	$60,773	$7,109	1,014,048
1953	555,114	464,253	116,785	114,311	38,842	1,289,305
1954	566,280	530,674	54,183	505,936	364,762	2,021,835
Total	2,017,030	1,627,803	399,673	681,020	410,713	5,136,239
Average	403,406	325,561	99,918	227,007	136,904	1,027,248

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